U.S. Army Corps of Engineers - Omaha District

Finding of No Significant Impact
&
Tiered Environmental Assessment

PUBLIC LAW 84-99
REHABILITATION PROGRAM

Levee Unit 624-627 – Mosquito Creek
Pottawattamie County, Iowa — October 2014

PROJECT — **DATE**

Report Documentation Page

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FINDING OF NO SIGNIFICANT IMPACT
AT LEVEE UNIT 624 AND 624-627-611-614 BANKLINE REPAIR PROJECT
COUNCIL BLUFFS, POTTAWATTAMIE COUNTY, IOWA

October 2014

In accordance with the National Environmental Policy Act and implementing regulations, a tiered Environmental Assessment (EA) has been prepared to evaluate the effects of the proposed rehabilitation of the bankline at Levee Unit 624 and 624-627-611-614 along Mosquito Creek in areas that were affected by high flows in June 2014. The proposed project involves excavating sloughed material, re-establishing the bankline through the use of compacted cohesive fill and placing rock riprap on these areas to prevent future sloughing and erosion. This work will be conducted under Public Law (PL) 84-99.

Two alternatives were considered: the Recommended Alternative which would repair and re-establish the integrity of the damaged bankline in two affected areas along the levee and the No Action Alternative. The No Action Alternative was considered but not selected because it would not meet the project purpose and need, which is to repair the levee to pre-disaster condition.

The environmental consequences of the proposed action on the physical, biological, and cultural resources have been evaluated. Factors that were influential in the review included (a) the proposed project will repair the integrity of the levee; (b) no significant adverse impacts to cultural or natural resources are anticipated to occur; (c) threatened and endangered species will not be adversely impacted by the proposed project; (d) all applicable federal and state regulations will be met prior to contract award; and (e) resource agencies and the public have no objections to the proposed action nor are there significant unresolved issues.

In addition, Best Management Practices will be incorporated into the project description to reduced construction-related noise; avoid the spread of noxious weeds; and minimize air quality, water quality, and wildlife-related impacts.

Based on the disclosure of the impacts contained within the tiered EA, the proposed project is not a major federal action that would significantly affect the quality of the human environment and, therefore, does not require preparation of an environmental impact statement.

_____
Date

_____
Joel R. Cross
Colonel, Corps of Engineers
District Commander

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Public Law 84-99 Rehabilitation Program

1.0 Introduction

In accordance with the National Environmental Policy Act (NEPA) and implementing regulations, a Programmatic Environmental Assessment (PEA) for the PL 84-99 Rehabilitation Program in the U.S. Army Corps of Engineers, Omaha District (Corps) was finalized on December 27, 2011, and is incorporated by reference herein. This project-specific NEPA review is tiered off of the programmatic document to determine if the proposed levee rehabilitation project meets the description and criteria of the Recommended Plan as described in the PEA.

This assessment meets the requirements of NEPA of 1969, as amended (42 U.S. Code [USC] 4321 et seq.); the President's Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] 1500 – 1508) and the Corps' Engineer Regulation (ER) 200-2-2 (33 CFR 230).

The high flows experienced in June 2014 caused damages along the Missouri River Levee Unit 624 and 624-627-611-614. As a result of high waters and above-normal rainfall, the levee became saturated and portions of the levee eroded. Nine areas were reported as damaged; however, only two qualify for assistance under the PL 84-99 Rehabilitation Program.

1.1 Purpose and Need

Purpose: The purpose of the PL 84-99 Emergency Levee Rehabilitation Program is to provide emergency assistance to levee districts and communities (project Sponsors) in the form of levee repair and/or flood damage reduction as directed by Congress (33 U.S.C. 701n). This program is described in detail in ER 500-1-1 (USACE, 2001). The proposed 624 and 624-627-611-614, Mosquito Creek rehabilitation project is a PL 84-99 project; its purpose is to restore the integrity of the levee to pre-disaster condition.

Need: The project is needed because the constant high flows from June 2014 caused erosion and bank sloughing into the designed 1 vertical: 3 horizontal (1:3) riverside levee slope. As such, the integrity of the levee has been compromised, cannot function as originally intended and must be repaired.

1.2 Project Location

The 624 and 624-627-611-614 levee systems are located in an urbanized area of Council Bluffs, in Pottawattamie County, Iowa (see Figure 1). The upstream tieback of 624 is along the left bank of Indian Creek and the downstream tieback follows the right bank of Upper Pony Creek, including the Mosquito Creek tieback. The upstream tie-off is at Big Lake Park and the downstream tie-back follows the right bank of Indian Creek. The two areas of this system eligible for repair, include station C5+00 and station C65+00-C67+00, located on the right bank of Mosquito Creek (see Section 2.2).

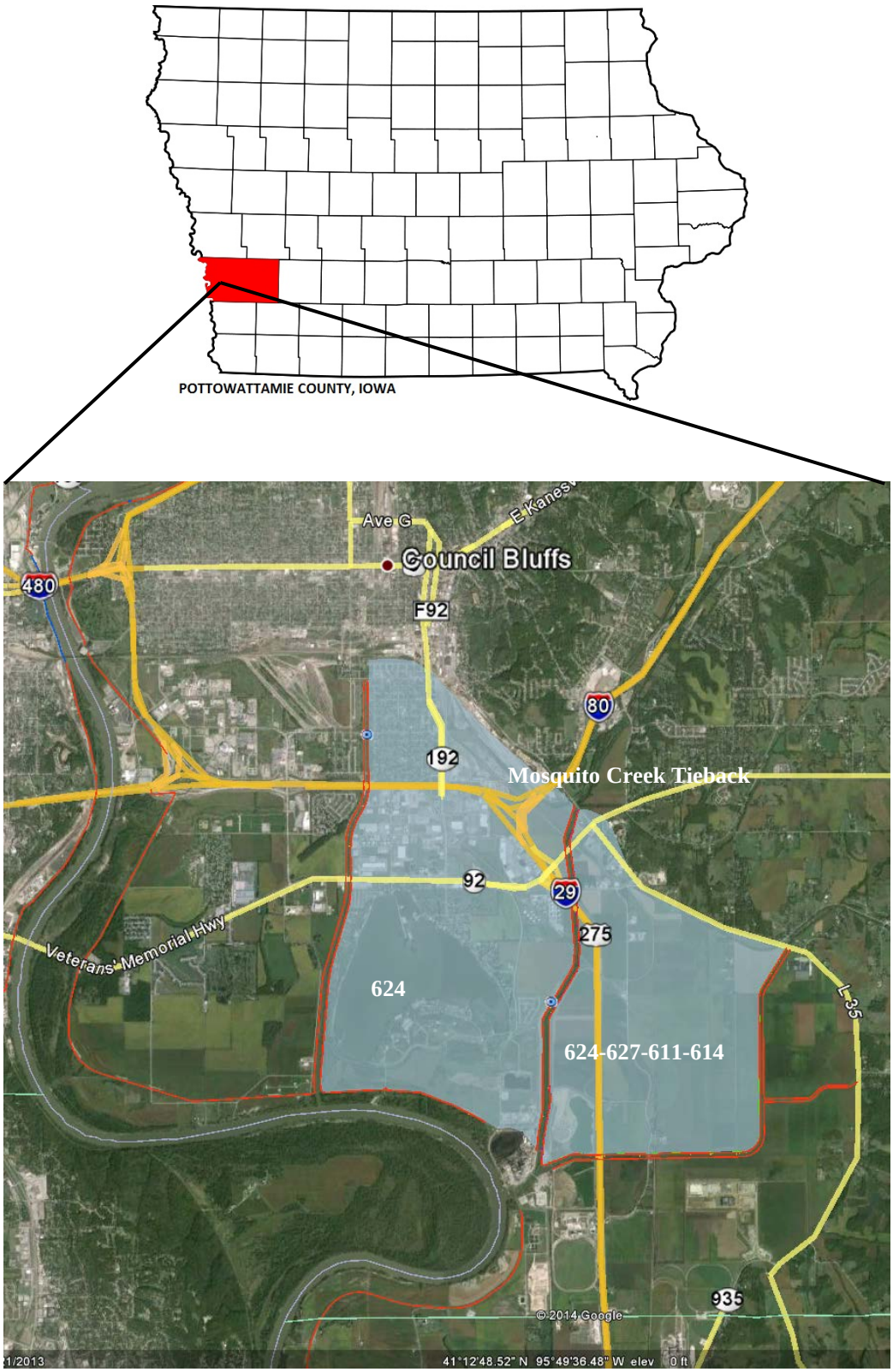

Figure 1. L 624 and L 624-627-611-614 located in Council Bluffs, Pottawattamie County, Iowa

2.0 Alternatives

The PEA examined a full range of alternative actions under the PL 84-99 Rehabilitation Program in order to determine which alternative best met the purpose and need on a programmatic level.

The alternatives examined in the PEA are provided in Table 1 for reference. Non-structural measures were considered at this location; however, it was determined that implementation of non-structural measures would be constrained in the damaged area because the local sponsor and present landowners desire to continue existing use of the associated land. The Non-structural Flood Recovery/Floodplain Management alternative was therefore eliminated from detailed analysis at this location. The alternatives retained for detailed analysis include the No Action Alternative and the Structural Repair Alternative.

Table 1. PEA Alternatives

PEA Alternative Actions under PL 84-99 Program	Description of Alternative
Alternative 1 - No Action	No levee repair assistance from the PL 84-99 Program Local Sponsor would repair levee to pre-disaster conditions at full cost
Alternative 2 - Structural Repairs	Repair of damaged non-Federal and Federal levees after high flow events through in-place repairs and/or minor levee setbacks Repairs limited to restoring the same level of flood risk management that existed prior to damages
Alternative 3 - Non-Structural Responses	Flood risk management provided by modifying structures and property to reduce damages during flood events Examples include: relocating structures, buyouts, elevating structures, and providing ring levees
Alternative 4 - Combination of Structural Repairs and Non-Structural Responses	Flexibility to use either structural repairs or non-structural repairs (as described above), or a combination thereof depending on site-specific needs

2.1 No Action Alternative

Under the No Action Alternative, the federal action (PL 84-99 assistance) would not occur. Without PL 84-99 assistance, it is anticipated that the local sponsor would repair the compromised portions of 624 and 624-627-611-614 to pre-disaster conditions at its own expense. As indicated in the PEA, it is reasonable to assume the local levee sponsor would choose to repair the levee to pre-disaster conditions in the absence of federal assistance due to the high value of protected land and infrastructure located behind the levees.

2.2 Recommended Alternative

The PEA Recommended Alternative provides the greatest flexibility to repair levees by recommending a site-specific determination whether to implement structural repairs, non-structural repairs or a combination thereof. The site-specific determination to use structural

responses to rehabilitate levees 624 and 624-627-611-614 is therefore consistent with the PEA recommendation.

Damages to the Mosquito Creek tieback levee from the June 2014 flood event were identified at nine separate stations by the non-federal sponsor: 1) C5+00, 2) C55+00-C57+00, 3) C65+00-C67+00, 4) D320+00, 5) C83+00-C85+00, 6) C85+00-C100+00, 7) D284+00, 8) C111+00-C115+00 and 9) C175+00 (see Figure 2). Of the nine reported damaged areas, only two are eligible for repair under PL 84-99 assistance: 1) C5+00 and 3) C65+00- C67+00. Sloughing in these two areas has progressed into the 1:3 riverside levee slope projection.

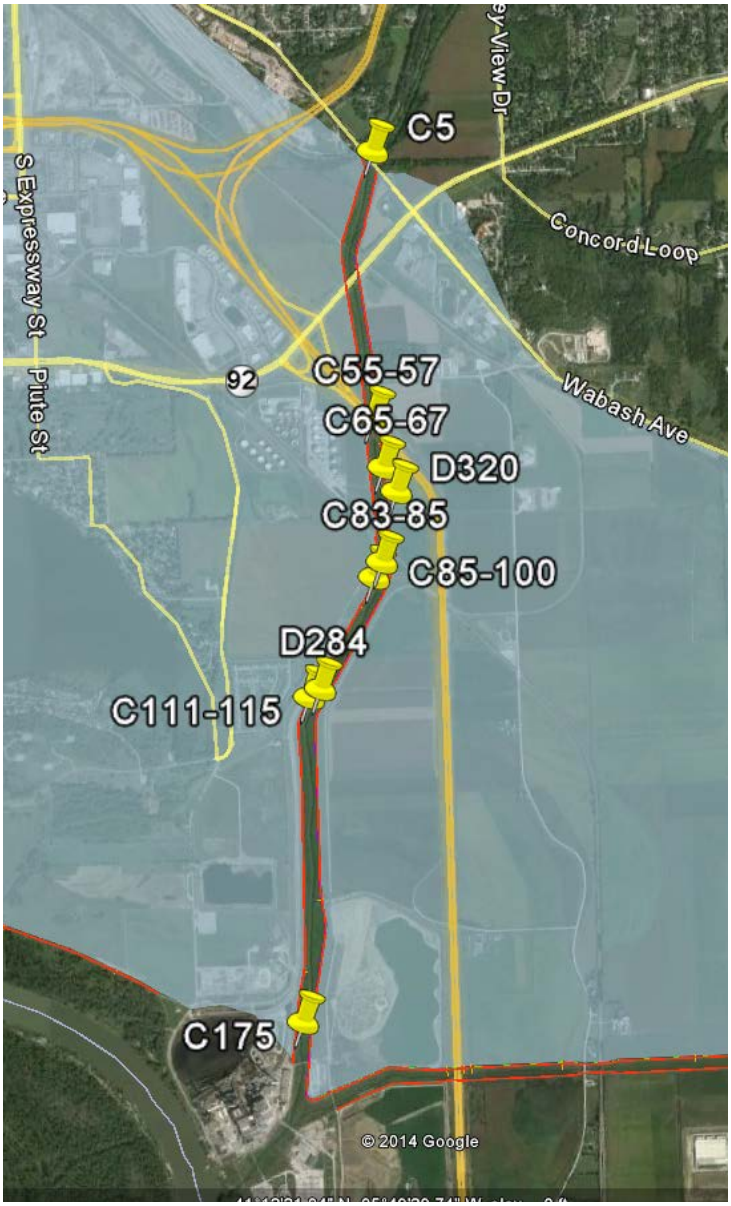

Figure 2. Sponsor-reported damaged areas

It is proposed for area C5+00 (see Figure 3) that the sloughed material along the channel bank be removed and the bankline re-graded to its original design of 1:3 riverward channel slope. Approximately 3,600 cubic yards of material would be used to accomplish bench and re-grade the bankline. Sloughed material excavated would be hauled to an approved off-site disposal location. A geotextile membrane, approximately 14,800 square foot, would be installed over the

reshaped slope and then approximately 2,500 tons of rock riprap would be placed atop to armor the bank from future erosion. The proposed repair would be similar to repairs done in an adjacent area of the levee in 2010, and extend and tie into the 2010 repair located immediately upstream of the damage area. Construction areas not otherwise hard-surfaced would be reseeded following construction. The proposed project footprint at C5+00 would not exceed 300 feet in length along the bankline.

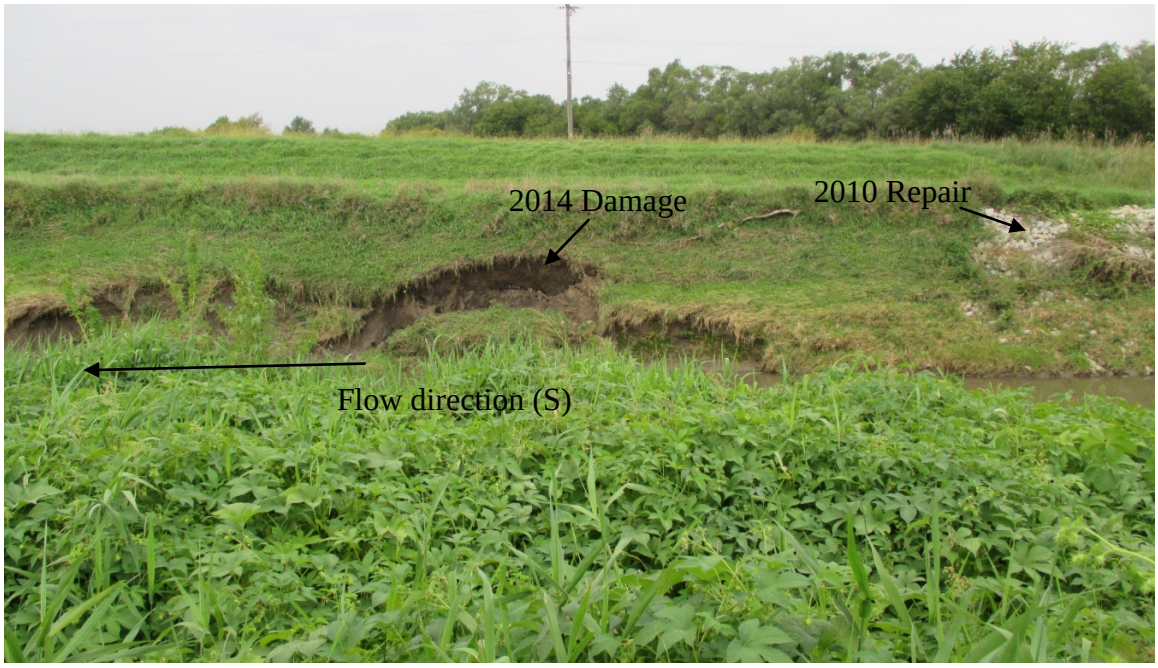

Figure 3. Area C5+00 damage

The second damaged area proposed for rehabilitation, C65+00- C67+00, is located downstream of C5+00. The erosion of the channel bank has encroached into the levee (see Figure 4). It is proposed that sloughed material along the channel bank would be removed and the bankline re-graded to the original 1:3 riverside levee slope design configuration. Sloughed material excavated would be hauled to an approved off-site disposal location. Like C5+00, the re-graded surface would be benched and compacted with approximately 3,600 cubic yards of earthen material and a 14,800 square foot geotextile membrane would be placed atop the newly reshaped bankline. Approximately 2,400 tons of rock riprap would be placed atop the repaired area to prevent future erosion. Construction areas not otherwise hard-surfaced would be reseeded after construction. The proposed project footprint at C65+00-C67+00 would not exceed 300 feet in length along the bankline.

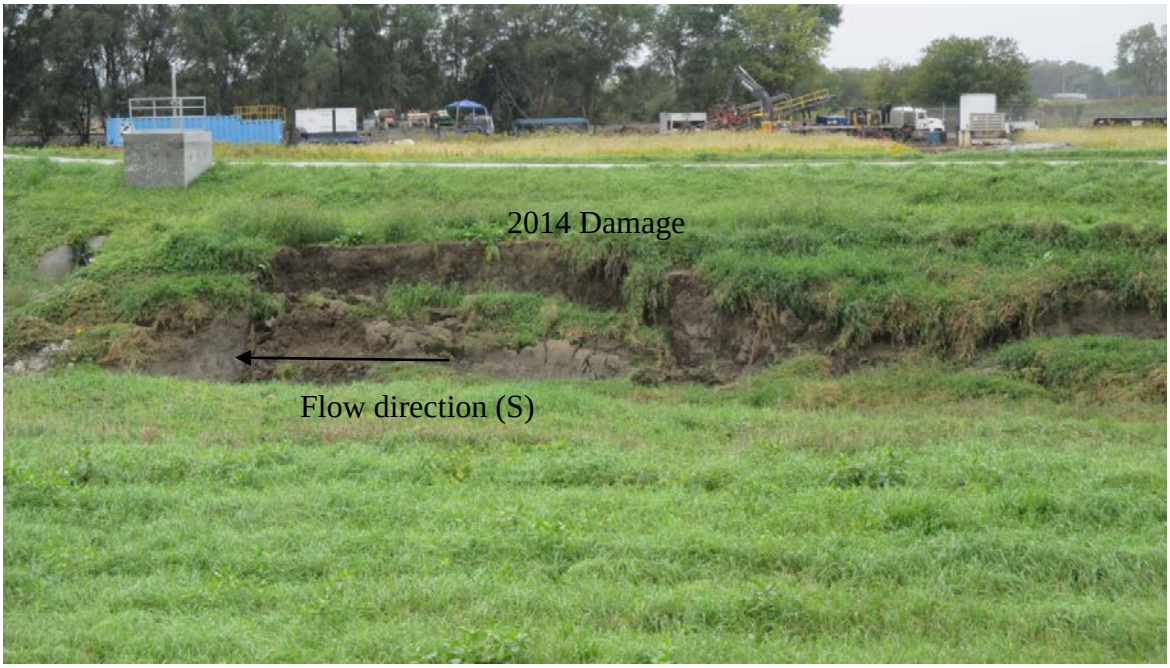

Figure 4. Area C65+00-C67+00 damage

3.0 Affected Environment and Environmental Consequences

The PEA provides an impact analysis of a range of environmental resources from a regional/programmatic perspective. This document, tiered from the PEA, provides a more-detailed impact analysis where it was determined an additional site-specific analysis was needed to determine if the proposed project would have impacts beyond which were described in the PEA or if additional analysis was necessary to determine compliance with environmental laws and regulations. Water Quality, wetlands, migratory birds, threatened and endangered species, and cultural resources are included in this site specific analysis. Other natural resources either do not exist in the project's affected environment or are adequately addressed within the PEA.

This section presents the adverse and beneficial environmental effects of the recommended action and the No Action Alternative. This section is organized by resource category, with the effects of alternatives combined under each resource category. Impacts are quantified whenever possible. Qualitative descriptions of impacts are explained by accompanying text where used.

Qualitative definitions/descriptions of impacts as used in this section of the report include:

- Intensity
    - Minor – noticeable impacts to the resources in the project area, but the resource is still mostly functional
    - Moderate – the resource is impaired so that it cannot function normally
    - Major – the resource is severely impaired so that it is no longer functional in the project area
- Duration
    - Short term – temporary effects caused by the construction and/or implementation of the selective alternative
    - Long term – caused by an alternative after the action has been completed and/or after the action is in full and complete operation.

3.1 Water Quality

Water quality sampling in Mosquito Creek has not been conducted. This tributary of the Missouri River is approximately 60 miles long where it rises near Earling, Shelby County, Iowa and flows in a general southwesterly direction, meeting the Missouri River approximately five miles downstream of Council Bluffs.

Section 303(d) of the Clean Water Act (CWA) (33 U.S.C. § 1251 et seq.) requires states to evaluate water quality conditions in designated waterbodies, and list as impaired any waterbodies not meeting water quality standards. As appropriate, states must develop and implement Total Maximum Daily Loads (TMDLs) i.e. pollutant management plans, for water bodies identified as impaired. No pollutant management plan has been developed for this body of water.

Recommended Alternative

Impacts to water quality from the Recommended Plan would be minor and short-term. Temporary increases in turbidity would occur within portions of Mosquito Creek during excavation of the sloughed material, re-shaping of banklines and placement of riprap. Best Management Practices (BMPs) required by the National Pollutant Discharge Elimination System (NPDES) permit (e.g., silt trapping devices) would be implemented as required to minimize turbidity.

Unintentional introduction of contaminants to the waterway from construction work is a potential effect that would be minimized with additional BMPs (using properly cleaned equipment, storing petroleum products in bermed areas out of the watershed, covering stock-piled materials, etc.). The CWA requires preparation and submission of a general storm water permit and preparation of a Storm-water Pollution Prevention Plan (SWPPP) before construction activities can begin. The SWPPP would be based on BMPs. Following construction, areas disturbed and not otherwise hard-surfaced would be top-soiled and stabilized with a native seed mixture to minimize erosion. Thus, there would be no significant impacts to water quality in the proposed project location from implementation of the Recommended Alternative.

No Action Alternative

Under the No Action Alternative, it is assumed that the necessary repairs would be made by the non-federal sponsor, the City of Council Bluffs. This would result in the potential for minor and short-term construction related impacts to water quality due to site runoff and other construction activities - similar to the Recommended Plan. Use of BMPs required by the NPDES permit and SWPPP would minimize the potential for contaminants from entering the waterway. As such, no significant impacts to water quality would result from the No Action Alternative.

3.2 Wetlands

High-resolution (1 meter) aerial photography and National Wetlands Inventory (NWI) maps were used for an offsite determination of potential impacts to wetlands and other waterbodies. The NWI map revealed two small (0.16 acres and .10 acres) freshwater emergent wetlands (temporarily flooded) (PEMCx) approximately 140 feet and 315 feet, respectively, adjacent to C5+00 (see Figure 5). No wetlands exist within the proposed project footprint of C65+00-C67+00.

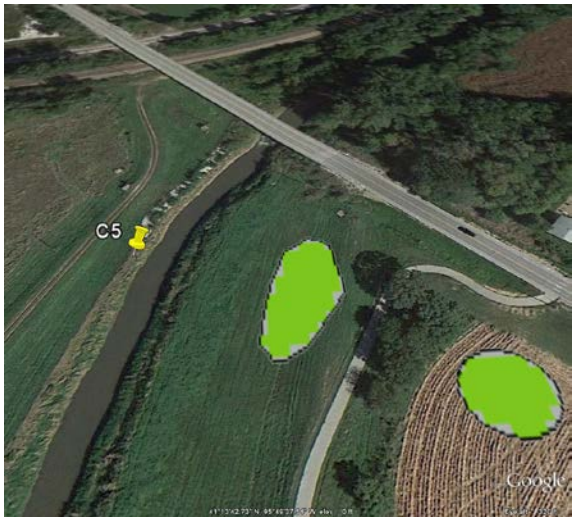

Figure 5. PEMCx wetlands adjacent (shapefile in green) to C5+00 damage site (derived from USFWS NWI mapping service)

Recommended Alternative

Neither wetland described above are within the effected environment of the proposed project, and would therefore not be affected by the Recommended Alternative. The Recommended Alternative would consist of clearing and grubbing vegetation, sloping the ditch banks back to 3:1, and placing bedding material and rock rip-rap on the newly prepared surface. The placement of the bedding material and rock riprap would allow natural water flow within the ditch, tie into the existing channel grades without causing abrupt changes, and occupy an total area of less than one tenth of an acre below the Ordinary High Water Mark. The proposed repairs at the project site are deemed a form of on-going project maintenance conducted in order to keep the feature functioning properly.

Nationwide Permit 13 (NWP) would authorize the fill for this project. This permit authorizes the bank stabilization activities necessary for erosion prevention provided the activity is no more than 500 feet in length. The recommended alternative also falls in line with this NWP as no more than one cubic yard per running foot would be placed along the bank below the plane of the ordinary high water mark, no fill material would be discharged into aquatic sites deemed special or sensitive and this activity is not an in-stream channelization activity. Iowa Department of Natural Resources (IDNR) has accepted and granted blanket 401 Water Quality Certification for this permit on April 17, 2012 (see Appendix A).

No Action

Under the No Action Alternative, it is assumed that the levee would be repaired by the City of Council Bluffs. This would result in impacts similar to the Recommended Alternative. The sponsor would be required to coordinate with the Corps Omaha District's Regulatory Office to obtain proper 404 authorization for the proposed fill, and coordination between the Regulatory Office and the IDNR would occur to obtain appropriate Water Quality Certification. It is believed that the sponsor would obtain the necessary permits prior to any undertaking. As such, no significant impacts to wetlands or waters of the United States would result from the No Action Alternative.

3.3 Migratory Birds

The habitat in the proposed project area consists of trees and grasses adjacent to Mosquito Creek (Figure 6). It is expected that common birds would occur on site, such as blue jay (*Cyanocitta cristata*), mourning dove (*Cyanocitta cristata*), American goldfinch (*Carduelis tristis*), northern oriole (*Icterus galbula*), yellow warbler (*Dendroica petechia*), rose-breasted grosbeak (*Pheucticus ludovicianus*), vireo (*Vireo* spp.), northern flicker (*Colaptes auratus*), red-headed woodpecker (*Melanerpes erythrocephalus*), wild turkey (*Meleagris gallopavo*), eastern kingbird (*Tyrannus tyrannus*), killdeer (*Charadrius vociferus*), cardinal (*Cardinalis cardinalis*), robin (*Turdus migratorius*), brown thrasher (*Toxostoma rufum*), swallows (*Hirundo spp.*), bobwhite quail (*Colinus virginianus*), and ring-necked pheasents (*Phasians colchicus*). These species occur either seasonally as migrants or year-round as residents and use the trees and grasses for nesting, resting, feeding, and sheltering.

Figure 6. Common vegetation found along Mosquito Creek and 624-627

Raptor species within or near the project area include red-tailed hawks (*Buteo jamaicensis*), bald eagles (*Haliaeetus leucocephalus*), American kestrels (*Falco sparverius*), Swainson's hawks (*Buteo swainsoni*), peregrine falcons (*Falco peregrinus*), and several owl species including great-horned owls (*Bubo virginianus*). Raptors likely use the site primarily for roosting, nesting, feeding, and perching habitat. No large snags suitable for bald eagle (*Haliaeetus leucocephalus*) perches occur onsite, although some mid-sized trees suitable for smaller raptors exist.

Federal agencies are subject to the provisions of the Migratory Bird Treaty Act (MBTA - 16 U.S.C. 703-711) which regulates the take of any migratory bird species. Pursuant to the MBTA and Bald and Golden Eagle Protection Act (BGEPA), assessments are conducted when trees are proposed for removal or native grasses are proposed to be disturbed during sensitive nesting times (February through July for raptors – April through July for songbirds) to determine if there would be any potential effects to nesting birds.

Recommended Alternative

Noise from project construction may cause temporary avoidance of the area by birds found on site. Habitat similar to the proposed project area occurs both upstream and downstream, so any species affected by construction noise and commotion would simply relocated. Upon completion of construction, these species would likely return to the area.

Some trees and grasses adjacent to the two damage sites would likely be cleared and grubbed to provide a workable area for bedding and rock riprap placement. To minimize potential impacts to migratory birds and their nests, clearing and grubbing of vegetation would occur outside of the sensitive migratory bird nesting season. Should clearing and grubbing be proposed within the sensitive migratory bird nesting season, a qualified biologist would conduct a field survey of the affected habitats prior to construction to determine the presence or absence of nesting migratory birds. If nesting migratory birds are identified, the US Fish and Wildlife Service (USFWS) and the IDNR would be immediately contacted for guidance and assistance on how to proceed in order to avoid impacting nesting birds. As such, the proposed project would not significantly impact migratory birds.

No Action

Under the No Action Alternative, it is assumed that the necessary repairs would be conducted by the sponsor. Noise, similar to the Recommended Alternative, would occur and likely cause avoidance of the area by birds until such time that construction stops. Like the Recommended Alternative, once construction is completed, birds could return to the area. For clearing and grubbing of trees and grasses, it is unknown if the sponsor would conduct pre-construction surveys for nesting birds. As such, migratory birds could be adversely affected by the No Action Alternative, although it is believed that no significant impacts would result given that only a minimal number of trees would need to be removed.

3.4 Species of Special Concern

Consistent with recommendations contained in the PEA, no site-specific evaluations for endangered or threatened species are currently needed at the proposed repair site because the species listed in Pottawattamie County are not found at the proposed project site.

Pallid Sturgeon (*Scaphirhynchus albus*): Endangered
The pallid sturgeon was listed as federally endangered on September 6, 1990. This species is adapted to main channel habitat of large, turbid rivers. While Mosquito Creek is a tributary of the Missouri River it is not anticipated they would be found within the project area as they are main channel obligates.

Interior Least Tern (*Sterna anthillarum anthalassos*): Endangered
The interior least tern was designated federally endangered in 18 states and state endangered in 14 of the 18 states in 1985, shortly after the American Ornithologist Union recognized it as a subspecies to *A. anthalassos* in 1983. Historically this species has been found along sand and gravel bars of large river systems near shallow water feeding grounds. It is not expected that the interior least tern would be present along the portions of Mosquito Creek proposed for repair as there is no nesting or feeding habitat available.

Piping Plover (*Charadrius melodus*): Threatened
The piping plover is a federally threatened species in the state of Iowa and shares the same habitat preferences as the interior least tern. As such, it is expected that the piping plover would not occur in the proposed project area due to lack of feeding and breeding habitat.

Western Prairie Fringed Orchid (*Platanthera praeclara*): Threatened
This orchid occurs in mesic to wet unplowed tallgrass prairies. The project site is adjacent to agricultural fields that are regularly farmed so it is unlikely that the orchid occurs on-site.

Prairie Bush Clover (*Lespedeza leptostachya*): Threatened
The prairie bush clover is a federally threatened species endemic to tallgrass prairies. Loss of habitat has likely been the primary cause for this species decline. Surviving populations are threatened by land conversion, overgrazing, agriculture practices, herbicides and transportation right-of-ways. The project site is adjacent to urban areas and actively farmed agriculture lands so it is likely this species does not occur within the proposed project footprint.

Northern Long-eared Bat (*Myotis septentrionalis*): Proposed Endangered
The northern long-eared bat has been proposed to be federally listed as an endangered species. Several threats are causing decline of this species, to include white-nose syndrome, impacts to hibernacula, loss of habitat and wind farm operations. Northern long-eared bats spend winters hibernating in caves and abandoned mines, during the summer they roost in colonies underneath loose bark, in cavities or crevices. They emerge at dusk to feed along the understory of wooded areas. It is not likely that the northern long-eared bat occupies the project area as neither hibernacula nor roosting and feeding grounds are available.

Eastern Massasuga (*Sistrurus catenatus*): Candidate
The eastern massasauga is a small, thick-bodied venomous rattlesnake that was listed as a candidate species for listing on October 26, 2011. This snake inhabits wet prairies, marshes and low areas along rivers and lakes, though they may also utilize adjacent upland areas. Habitat loss and public fear of venomous snakes are the primary contributors to this specie's decline. It is possible that the eastern massasuga could be found within the proposed project area as Mosquito Creek could provide adequate feeding and hibernacula.

Recommended Plan

An email prepared by the Corps, dated October 3, 2014, was sent to USFWS and IDNR. The email described the proposed project and potential impacts it may have on species of special concern that could be found in Pottawattamie County, Iowa. A preliminary determination by the Corps' biologist was made that the proposed project would have No Affect on any of those federally threatened or endangered species found in the county because habitat for those species does not occur on site where the proposed project is located. However, for the candidate eastern massasuga, there is a potential to affect as it is reasonable to assume that Mosquito Creek provides adequate habitat for this species. In order to avoid potential impacts a pre-construction survey will be conducted in order to determine no eastern massasugas are within the project footprint. An email, dated October 22, 2014, from the USFWS concurred with the Corps' determinations. No response was received from IDNR. Please see Appendix B for correspondence from these agencies.

No Action Alternative

Under the No Action Alternative, it is assumed that similar repairs to the recommended plan would be undertaken by the Sponsor. As no threatened or endangered species likely occur on site, no impacts to listed species would be anticipated, however, it is plausible the candidate eastern massasuga may be present at the proposed project location and adverse impacts may occur if pre-construction surveys are not conducted.

3.5 Cultural Resources

Recommended Plan
An email prepared by the Corps, dated October 3, 2014, was sent to the Corps Omaha District Cultural Resources Specialist to detail the proposed project plans and ensure that no cultural resources are within the project footprint. An email, dated October 23, 2014, confirmed that no cultural resources are currently listed or eligible for listing on the National Register.

In the unlikely event of an unanticipated discovery of cultural resources, construction work would be halted immediately and a district archeologist would be notified. The construction work would not be re-initiated until the area is inspected by a staff archeologist and he or she determines it is safe to do so. If he or she determines that the discovery requires further consultation, the appropriate State Historic Preservation Office would be notified.

No Action
Under the No Action Alternative, no potential to affect cultural resources would occur for the same reasons as stated above for the Recommended Alternative.

4.0 Cumulative Impacts

Cumulative impacts from the PL 84-99 Rehabilitation Program were addressed in the PEA and were determined to be non-significant. The PEA cumulative impact assessments include potential cumulative impacts from site-specific projects such as the proposed work at Mosquito Creek.

The area where the proposed project would be constructed is surrounded by agricultural land and urban areas, any activity in this area would not significantly add to further degradation of the human environment. In fact, construction of the proposed project is considered a form of maintenance that would simply return the structure to its pre-existing condition and allow continued use of the lands surrounding the structure.

5.0 Coordination and Comment

Coordination was conducted with state and federal resource agencies through the PEA to ensure compliance with all applicable laws, policies, and regulations. Federal and state agency comment letters associated with the PEA are contained within the Corps Planning Section's files and are available upon request.

Coordination with the USFWS and the IDNR occurred as part of this tiered EA to ensure no significant impacts to species of special concern would result from construction of the proposed project. Coordination with the Omaha District Corps of Engineers Cultural Resources Specialist occurred to ensure no significant impacts would occur to cultural resources. The Omaha

District's Regulatory Office was consulted to ensure no adverse impacts to wetlands or waters of the United States would occur. A copy of all correspondence is attached to this EA.

6.0 Compliance with Other Environmental Laws

NWO Programmatic EA	Compliance
SOP for Selection of Borrow Sites	Not Applicable
Regulatory Authorization Obtained	Full Compliance
Section 401 State Water Quality Certification	Full Compliance
Section 402 Stormwater NPDES Permit	Full Compliance

Federal Laws and Polices	Compliance
Archeological Resources Protection Act, 16 U.S.C. 470, est seq.	Full Compliance
Bald and Golden Eagle Protection Act (16 U.S.C. Sect. 668. 668 note, 668a-66d)	Full Compliance
Clean Air Act, as amended, 42 U.S. C. 7401-7671g, et seq.	Full Compliance
Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq.	Full Compliance
Endangered Species Act, 16 U.S.C. 1531, et seq.	Full Compliance
Federal Water Project Recreation Act, 16 U.S.C. 4601-12, et seq.	Full Compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 661, et seq.	Full Compliance
Land and Water Conservation Fund Act, 16 U.S.C. 4601-4, et seq.	Not Applicable
Migratory Bird Treaty Act (16 U.S.C. 703-712: Ch. 128 as amended)	Full Compliance
National Environmental Policy Act, 42 U.S.C. 4321, et seq.	Full Compliance
National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470a, et seq.	Full Compliance
Rivers and Harbors Act, 33 U.S.C. 403, et seq.	Full Compliance
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.	Full Compliance
Farmland Protection Policy Act, 7 U.S.C. 4201, et. seq.	Full Compliance
Protection & Enhancement of the Cultural Environment (Executive Order 11593)	Full Compliance
Floodplain Management (Executive Order 11988)	Full Compliance
Protection of Wetlands (Executive Order 11990)	Full Compliance
Environmental Justice (Executive Order 12898)	Full Compliance
Invasive Species (Executive Order 13122)	Full Compliance
Responsibility of Federal Agencies to Protect Migratory Birds (Executive Order 13186)	Full Compliance

The proposed project has been evaluated and determined to be in compliance with the Programmatic Environmental Assessment for Public Law 84-99 Rehabilitation Program dated December 27, 2011.

NOTES: a. Full compliance - Having met all requirements of the statute for the current stage of planning (either preauthorization or post authorization). b. Not applicable - No requirements for the statute requirement.

7.0 Preparer

This EA and FONSI were prepared by Ms. Rebecca Bozarth, Environmental Resources Specialist. The address of the preparer is: U.S. Army Corps of Engineers, Omaha District, 1616 Capitol Avenue, Omaha, Nebraska 68102.

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APPENDIX A
Nationwide Permit 13

DECISION DOCUMENT
NATIONWIDE PERMIT 13

This document discusses the factors considered by the Corps of Engineers (Corps) during the issuance process for this Nationwide Permit (NWP). This document contains: (1) the public interest review required by Corps regulations at 33 CFR 320.4(a)(1) and (2); (2) a discussion of the environmental considerations necessary to comply with the National Environmental Policy Act; and (3) the impact analysis specified in Subparts C through F of the 404(b)(1) Guidelines (40 CFR Part 230). This evaluation of the NWP includes a discussion of compliance with applicable laws, consideration of public comments, an alternatives analysis, and a general assessment of individual and cumulative impacts, including the general potential effects on each of the public interest factors specified at 33 CFR 320.4(a).

1.0 Text of the Nationwide Permit

Bank Stabilization. Bank stabilization activities necessary for erosion prevention, provided the activity meets all of the following criteria:

(a) No material is placed in excess of the minimum needed for erosion protection;

(b) The activity is no more than 500 feet in length along the bank, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(c) The activity will not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark or the high tide line, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(d) The activity does not involve discharges of dredged or fill material into special aquatic sites, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(e) No material is of a type, or is placed in any location, or in any manner, that will impair surface water flow into or out of any waters of the United States;

(f) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas); and,

(g) The activity is not a stream channelization activity.

This NWP also authorizes temporary structures, fills, and work necessary to construct the bank stabilization activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when

temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Invasive plant species shall not be used for bioengineering or vegetative bank stabilization.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if the bank stabilization activity: (1) involves discharges into special aquatic sites; or (2) is in excess of 500 feet in length; or (3) will involve the discharge of greater than an average of one cubic yard per running foot along the bank below the plane of the ordinary high water mark or the high tide line. (See general condition 31.) (Sections 10 and 404)

1.1 Requirements

General conditions of the NWPs are in the Federal Register notice announcing the issuance of this NWP. Pre-construction notification requirements, additional conditions, limitations, and restrictions are in 33 CFR part 330.

1.2 Statutory Authority

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- Section 404 of the Clean Water Act (33 U.S.C. 1344)

1.3 Compliance with Related Laws (33 CFR 320.3)

1.3.1 General

NWPs are a type of general permit designed to authorize certain activities that have minimal individual and cumulative adverse effects on the aquatic environment and generally comply with the related laws cited in 33 CFR 320.3. Activities that result in more than minimal individual and cumulative adverse effects on the aquatic environment cannot be authorized by NWPs. Individual review of each activity authorized by an NWP will not normally be performed, except when pre-construction notification to the Corps is required or when an applicant requests verification that an activity complies with an NWP. Potential adverse impacts and compliance with the laws cited in 33 CFR 320.3 are controlled by the terms and conditions of each NWP, regional and case-specific conditions, and the review process that is undertaken prior to the issuance of NWPs.

The evaluation of this NWP, and related documentation, considers compliance with each of the following laws, where applicable: Sections 401, 402, and 404 of the Clean Water Act; Section 307(c) of the Coastal Zone Management Act of 1972, as amended; Section 302 of

the Marine Protection, Research and Sanctuaries Act of 1972, as amended; the National Environmental Policy Act of 1969; the Fish and Wildlife Act of 1956; the Migratory Marine Game-Fish Act; the Fish and Wildlife Coordination Act, the Federal Power Act of 1920, as amended; the National Historic Preservation Act of 1966; the Interstate Land Sales Full Disclosure Act; the Endangered Species Act; the Deepwater Port Act of 1974; the Marine Mammal Protection Act of 1972; Section 7(a) of the Wild and Scenic Rivers Act; the Ocean Thermal Energy Act of 1980; the National Fishing Enhancement Act of 1984; the Magnuson-Stevens Fishery and Conservation and Management Act, the Bald and Golden Eagle Protection Act; and the Migratory Bird Treaty Act. In addition, compliance of the NWP with other Federal requirements, such as Executive Orders and Federal regulations addressing issues such as floodplains, essential fish habitat, and critical resource waters is considered.

1.3.2 Terms and Conditions

Many NWPs have pre-construction notification requirements that trigger case-by-case review of certain activities. Two NWP general conditions require case-by-case review of all activities that may adversely affect Federally-listed endangered or threatened species or historic properties (i.e., general conditions 18 and 20). General condition 16 restricts the use of NWPs for activities that are located in Federally-designated wild and scenic rivers. None of the NWPs authorize the construction of artificial reefs. General condition 28 prohibits the use of an NWP with other NWPs, except when the acreage loss of waters of the United States does not exceed the highest specified acreage limit of the NWPs used to authorize the single and complete project.

In some cases, activities authorized by an NWP may require other federal, state, or local authorizations. Examples of such cases include, but are not limited to: activities that are in marine sanctuaries or affect marine sanctuaries or marine mammals; the ownership, construction, location, and operation of ocean thermal conversion facilities or deep water ports beyond the territorial seas; activities that result in discharges of dredged or fill material into waters of the United States and require Clean Water Act Section 401 water quality certification; or activities in a state operating under a coastal zone management program approved by the Secretary of Commerce under the Coastal Zone Management Act. In such cases, a provision of the NWPs states that an NWP does not obviate the need to obtain other authorizations required by law. [33 CFR 330.4(b)(2)]

Additional safeguards include provisions that allow the Chief of Engineers, division engineers, and/or district engineers to: assert discretionary authority and require an individual permit for a specific activity; modify NWPs for specific activities by adding special conditions on a case-by-case basis; add conditions on a regional or nationwide basis to certain NWPs; or take action to suspend or revoke an NWP or NWP authorization for activities within a region or state. Regional conditions are imposed to protect important regional concerns and resources. [33 CFR 330.4(e) and 330.5]

1.3.3 Review Process

The analyses in this document and the coordination that was undertaken prior to the issuance of the NWP fulfill the requirements of the National Environmental Policy Act (NEPA), the Fish and Wildlife Coordination Act, and other acts promulgated to protect the quality of the environment.

All NWPs that authorize activities that may result in discharges into waters of the United States require water quality certification. NWPs that authorize activities within, or affecting land or water uses within a state that has a Federally-approved coastal zone management program, must also be certified as consistent with the state's program. The procedures to ensure that the NWPs comply with these laws are described in 33 CFR 330.4(c) and (d), respectively.

1.4 Public Comment and Response

For a summary of the public comments received in response to the February 16, 2011, Federal Register notice, refer to the preamble in the Federal Register notice announcing the reissuance of this NWP. The substantive comments received in response to the February 16, 2011, Federal Register notice were used to improve the NWP by changing NWP terms and limits, pre-construction notification requirements, and/or NWP general conditions, as necessary.

The Corps proposed to modify this NWP by removing the waiver provision in paragraph (c) that allowed district engineers to authorize bank stabilization fills that exceeded one cubic yard per running foot below the ordinary high water mark or high tide line to encourage the use of bioengineered techniques for bank stabilization. To conform with the proposed change to in paragraph (c), we proposed to remove the third pre-construction notification threshold for bank stabilization fills that exceeded one cubic yard per running foot, since these fills would no longer be allowed. We also proposed changing this NWP to authorize temporary structures and fills necessary for the construction of bank stabilization activities.

Many commenters recommended that this NWP not be reissued, and stated that all bank stabilization should be evaluated under individual permit procedures. One commenter asserted that bank stabilization activities should be authorized with NWP 3 in man-made ditches and canals and NWP 13 in natural waterways. Two commenters said this NWP should not authorize new bank stabilization activities. Some commenters recommended modifying this NWP so that it would not authorize new vertical bulkheads and seawalls. One commenter stated that this NWP does not result in minimal individual and cumulative adverse effects on the aquatic environment because these activities accelerate coastal erosion and retreat. Additional commenters said that these activities result in more than minimal individual and cumulative effects. Some of these commenters said that this NWP has more than minimal adverse effects on low-order ephemeral and intermittent streams. One commenter said that this NWP should not be applicable to both riverine and lacustrine systems and recommended that separate NWPs be developed that would address the

different erosional processes in those systems. Several commenters stated that this NWP should not be reissued because of adverse effects to coastal environments, as well as sea turtles and other endangered species and their habitats. Another commenter recommended that bank stabilization only be permitted by this NWP if it is part of a habitat improvement project or has other net improvements in aquatic function.

The terms and conditions for this NWP are appropriate for limiting bank stabilization activities so that they have minimal individual and cumulative effects on the aquatic environment, while allowing landowners and other entities to protect their property and safety. NWP 3 only authorizes minor amounts of rip rap associated with maintenance activities. It is more appropriate to authorize bank stabilization activities in man-made waterways through NWP 13. In many coastal waters and rivers it is necessary to utilize hard bank protection structures, because wave energy and currents are too strong for bioengineering or other techniques to successfully prevent or reduce erosion. We do not agree that there should be separate NWPs developed to authorize bank stabilization activities in riverine and lacustrine waters. Bank stabilization that may affect endangered or threatened species require pre-construction notification and compliance with general condition 18, endangered species. We also do not agree that this NWP should be limited to habitat improvement projects, because it is often necessary to install bank stabilization structures and fills to protect property and safety.

Two commenters said that NWP 13 should not be reissued because it authorizes activities that may prevent retreat that would be necessary to adapt to sea level rise caused by climate change. These commenters also said that sea level rise needs to be considered in the decision on whether to reissue this NWP. These commenters also stated that the structures and fills authorized by NWP 13 exacerbate erosion in areas where sea level rise will occur.

Coastal and riparian areas are dynamic landscapes. They are constantly changing as a result of erosional and depositional processes. Landowners seek Department of the Army authorization for bank stabilization activities to protect their property and provide safety. The purpose of NWP 13 activities is to protect land on which residences, commercial buildings, infrastructure, and other features are located. The Corps regulations recognize that a riparian landowner has a right to protect his or her property from erosion (see 33 CFR 320.4(g)(3)). When a district engineer evaluates a permit application for bank stabilization activities, including pre-construction notifications for NWP 13 activities, he or she considers the current environmental conditions at the site of the proposed activity, as well as the reasonably foreseeable direct, indirect, and cumulative effects that might be caused by the proposed activity. At the present time, there is a considerable amount of uncertainty surrounding climate change, and any associated sea level rise that may occur as a result of climate change. To the extent there is reliable information about projected sea level rise during the reasonably foreseeable future in the vicinity of a proposed activity, the district engineer will take that information into account when determining whether a proposed NWP 13 activity will have minimal individual and cumulative adverse effects on the aquatic environment. We do not agree that the structures and fills authorized by NWP 13 will accelerate erosion in areas affected by changing sea level rise caused by climate change. The

bank stabilization structures and fills authorized by this NWP must be properly designed, so that they have minimal individual and cumulative adverse effects on coastal and riparian erosion and deposition processes. As sea level rise occurs, bank stabilization activities may no longer be effective, and it may be necessary for landowners to relocate.

Two commenters suggested limiting all projects to a maximum length of 500 linear feet, except for allowing bioengineering projects to exceed that length on a case-specific basis if the district engineer waives that limit. One commenter recommended not allowing vertical bulkheads longer than 500 feet. One commenter recommended limiting replacement of vertical bulkheads and seawalls to a maximum length of 200 feet. Another commenter recommended a 300 linear foot maximum project length for shoreline protection on coastal areas or lakes. One commenter suggested a 300 linear foot maximum length for bioengineering projects and a 150 foot maximum length for all other bank stabilization projects. Two commenters requested clarification regarding project length in paragraph (b) as it relates to activities that stabilize both banks (left and right) of a stream. Many commenters supported the district engineer waiver for the 500 linear foot limit for any projects.

The limits in this NWP are sufficient to ensure that the NWP authorizes only those activities that have minimal adverse effects on the aquatic environment, although division engineers may regionally condition the NWP to reduce those limits to account for local environmental conditions and the ecological functions and services provided by waters of the United States in those areas. For streams, the linear foot limit in paragraph (b) applies to a single and complete project for the bank stabilization activity measured along the length of the stream segment, which may involve discharging dredged or fill material along either one or both stream banks. We have retained the ability for district engineers to waive the 500 linear foot limit.

One commenter requested a definition for bank stabilization. Many commenters asked for a definition of bioengineering. One commenter said that bioengineering techniques should include living plant material and soil as the primary structural components to reinforce soil and to stabilize slopes. One commenter recommended requiring native vegetation in bioengineering projects where vegetation is the primary or secondary component of a project.

We do not believe that a definition of bioengineering is necessary because there is a wide variety of bioengineering techniques and project proponents and district engineers generally understand what it means in a local context. It is not possible at the national level to envision every possible variation of technique and materials that would reasonably fit within the meaning of this term, but generally bioengineering involves the use of a combination of vegetation and hard materials instead of only hard materials such as rip-rap for bank stabilization. Also, as explained below, the final NWP does not make a distinction between bioengineering and other bank stabilization techniques. We agree that bioengineering, for the purposes of bank stabilization, includes providing protection from erosion and providing habitat for aquatic species. We also agree that bioengineered techniques can slow erosion

rates and can have beneficial effects on habitat for macroinvertebrates and fish which is why we proposed to modify this NWP to encourage greater use of this technique.

Several commenters recommended the NWP encourage the use of natural materials over riprap. One commenter said that only native plant species should be used for bioengineered bank stabilization. Another commenter recommended using natural stream design methods for erosion prevention. Several commenters objected to the placement of plant material in waters of the United States, and also objected to the planting of willows and similar species in and along waterways because these types of woody plants clog waterways and cause maintenance problems at bridge and culvert crossings.

Division engineers can regionally condition this NWP to encourage bioengineering or the use of natural materials for bank stabilization in waters subject to lower energy waves and currents. The use of plant materials as a component of a bank stabilization activity can have beneficial environmental effects, such as providing shading and habitat for near-shore organisms, or for riparian ecosystems. Proper maintenance should be done to remove plants that colonize waterways, especially at culverts or bridges. We have added a provision to this NWP stating that if bioengineering or vegetative bank stabilization is used, invasive plant species should not be used, because Executive Order 13112, Invasive Species, states that agencies should not "authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere." The Executive Order states there are economic, ecological, and human health impacts that are caused by invasive species, and we believe that invasive species should not be used for bioengineering bank stabilization activities authorized by this NWP because of the adverse environmental effects those species can cause.

Many commenters supported the proposed modification of paragraph (c) to only allow bioengineering projects to exceed one cubic yard per running foot, and to not allow waivers from the district engineer for other types of projects. Many other commenters objected to limiting that flexibility to bioengineering techniques, stating that bank protection structures are necessary in high energy coastal and riverine environments, and said that the waiver in the 2007 NWP 13 should be reinstated. Some commenters suggested removing paragraph (c) entirely. Several of these commenters thought the proposal would encourage bioengineering methods for achieving the necessary bank stabilization. Many commenters stated that the waiver to the cubic yard limit should be removed from paragraph (c) to ensure that the NWP authorizes only those activities with minimal adverse effects on the aquatic environment. Many commenters asserted that bioengineering methods for bank stabilization are unproven and not as effective at preventing erosion as hard structures. A few commenters suggested that the preference for bioengineering would be a hardship on local governments. Another commenter suggested that bioengineering techniques are rarely successful in arid areas and in ephemeral waterways. Another commenter added that the hydraulic forces in large rivers and tidal areas require the use of large stone, the size of which exceeds the one cubic yard per running foot average size, and are not conducive to bioengineering. Several commenters said that bioengineering is not always appropriate for protecting infrastructure such as roads and bridges, and requested that the one cubic yard per foot waiver be left in place to protect

these structures. One commenter suggested modifying the NWP to require alternatives analyses for each proposed project using an established hierarchy, beginning with bioengineering as the most preferable bank stabilization method and ending with the hard bank stabilization structures. One commenter observed that bank stabilization using bioengineering or any other method will still result in adverse effects, and suggested all bank stabilization activities should be located landward of the ordinary high water mark.

In response to the many commenters that objected to removing the provision allowing district engineers to waive, after reviewing a pre-construction notification, the one cubic yard per running foot limit, we have reinstated that provision in this NWP. We have also reinstated the third pre-construction notification threshold that was in the 2007 version of NWP, which requires pre-construction notification for discharges exceeding one cubic yard per running foot along the bank below the plan of the ordinary high water mark or the high tide line. We acknowledge that bioengineering may not be appropriate in all waters, because it may not result in effective bank stabilization. We have thus determined that it is not appropriate to establish a hierarchy of preferred bank stabilization options because such decisions are best left to district engineers that review project-specific pre-construction notifications, and can take into account the characteristics of the waterbody and the surrounding area, and determine which bank stabilization method would be most effective and environmentally preferable. We agree, however, that bioengineering techniques may be environmentally preferable in many situations and that project proponents should consider such techniques where practicable in order to comply with the general requirement to avoid and minimize adverse effects to the aquatic environment. It is not practicable to require all bank stabilization activities to be located landward of the ordinary high water mark.

One commenter asked if the volume of fill buried deeply below bioengineering or turf reinforcement mats could be exempted from the volume of fill that counts towards the one cubic yard per running foot limit in paragraph (b). Another commenter said that buried stone does not meet the regulatory definition of fill material, and said the volume of stone buried below the ordinary high water mark should not count towards the one cubic yard per running foot limit. One commenter suggested replacing the words "below the plane of" with "within the" when describing the ordinary high water mark in paragraph (c).

The definition of "fill" found in 33 CFR part 323.2 clearly states that rock is fill material, and burying rock in a waterway constitutes a discharge of fill material. The volume of the buried stone, along with all other fill material, must be determined and that volume placed below the plane of the ordinary high water mark or high tide line is considered when reviewing the proposed project. We have retained the language in NWP because the phrase "below the plane of" more accurately describes the Corps jurisdiction in waters of the United States. To the extent that the location and type of fill placed below the plane of the ordinary high water mark affects the potential for adverse effects to the aquatic environment, the district engineer would consider such factors in deciding whether to grant a waiver request.

Several commenters said that paragraph (d) should prohibit fills in special aquatic sites, including wetlands. One commenter opposes removing the waiver provision in paragraph (d) for work in special aquatic sites.

We believe that the pre-construction notification process affords the district engineer an appropriate opportunity to review proposed activities in special aquatic sites. Many streams and shorelines include, or are bordered by, special aquatic sites, and precluding use of this permit in these areas severely limits its usefulness for projects that have no more than minimal adverse effects on the aquatic environment. Additionally, it may be beneficial in some watersheds to stabilize eroding banks, even though small amounts of special aquatic sites may be impacted by a bank stabilization activity. Paragraph (d) requires a written determination concluding that the activity will result in minimal adverse effects. If a written waiver is not issued by the district engineer, then this NWP does not authorize such activities and the project proponent will have to obtain another form of DA authorization.

Several commenters expressed support for inclusion of temporary fills required to accomplish work authorized under this NWP. One commenter said that temporary fills should remain in place if their removal would do more damage than allowing them to remain in place. One commenter requested a list of mandatory best management practices developed for temporary fills authorized by this NWP.

If the district engineer determines that temporary fills should remain in place those fills may be authorized by another NWP, a regional general permit, or individual permit. We do not agree that specifically requiring best management practices is appropriate, although division engineers may regionally condition this NWP to add appropriate best management practices. District engineers may also add conditions to the NWP to require specific best management practices for a particular activity.

Several commenters stated that pre-construction notification should be required for all activities authorized by this NWP. One commenter requested that no pre-construction notification be required for any bank stabilization exceeding one cubic yard per running foot in ephemeral and intermittent waters. One commenter suggested removing all pre-construction notification requirements from work done under this NWP in man-made waterways. One agency recommended lowering a pre-construction notification threshold to 100 feet for hard bank stabilization projects such as riprap, and 300 feet for bioengineering projects. One commenter claimed it would be burdensome and costly to submit a pre-construction notification for every bank stabilization project.

We do not agree that it is necessary to require pre-construction notification for all activities authorized by this NWP. A large number of small bank stabilization activities are conducted each year that result in minimal adverse effects on the aquatic environment. We believe that the existing pre-construction notification thresholds are sufficient for satisfying the minimal adverse effects requirement for general permits, and division engineers can regionally condition this NWP to impose lower pre-construction notification thresholds, including requiring pre-construction notification for all activities.

Two commenters said that bank stabilization activities must avoid impacting tribal rights, tribal natural resources, and tribal cultural resources. Many commenters said that while bank stabilization projects may reduce erosion at a site, they may transfer or accelerate erosion in other areas of a waterbody.

General condition 17, tribal rights, prohibits the impairment of all reserved tribal rights. We acknowledge that bank stabilization activities may cause indirect effects in other areas of the waterbody and those indirect effects should be evaluated during the review of a pre-construction notification, if it is required. Activities that do not require a pre-construction notification have minimal adverse effects on the aquatic environment.

Some commenters asked that compensatory mitigation be required for all activities authorized by this NWP. A few commenters remarked that compensatory mitigation should be required for adverse effects on high quality riparian areas. Another commenter said that mitigation should be required when sheet piling is used to stabilize banks.

We do not believe compensatory mitigation should be required for all bank stabilization activities. District engineers will determine when compensatory mitigation is necessary to ensure that an activity results in minimal individual and cumulative adverse effects on the aquatic environment.

2.0 Alternatives

This evaluation includes an analysis of alternatives based on the requirements of NEPA, which requires a more expansive review than the Clean Water Act Section 404(b)(1) Guidelines. The alternatives discussed below are based on an analysis of the potential environmental impacts and impacts to the Corps, Federal, Tribal, and state resource agencies, general public, and prospective permittees. Since the consideration of off-site alternatives under the 404(b)(1) Guidelines does not apply to specific projects authorized by general permits, the alternatives analysis discussed below consists of a general NEPA alternatives analysis for the NWP.

2.1 No Action Alternative (No Nationwide Permit)

The no action alternative would not achieve one of the goals of the Corps Nationwide Permit Program, which is to reduce the regulatory burden on applicants for activities that result in minimal individual and cumulative adverse effects on the aquatic environment. The no action alternative would also reduce the Corps ability to pursue the current level of review for other activities that have greater adverse effects on the aquatic environment, including activities that require individual permits as a result of the Corps exercising its discretionary authority under the NWP program. The no action alternative would also reduce the Corps ability to conduct compliance actions.

If this NWP is not available, substantial additional resources would be required for the Corps to evaluate these minor activities through the individual permit process, and for the public and Federal, Tribal, and state resource agencies to review and comment on the large number of public notices for these activities. In a considerable majority of cases, when the Corps publishes public notices for proposed activities that result in minimal adverse effects on the aquatic environment, the Corps typically does not receive responses to these public notices from either the public or Federal, Tribal, and state resource agencies. Another important benefit of the NWP program that would not be achieved through the no action alternative is the incentive for project proponents to design their projects so that those activities meet the terms and conditions of an NWP. The Corps believes the NWPs have significantly reduced adverse effects to the aquatic environment because most applicants modify their projects to comply with the NWPs and avoid the delays and costs typically associated with the individual permit process.

In the absence of this NWP, Department of the Army (DA) authorization in the form of another general permit (i.e., regional or programmatic general permits, where available) or individual permits would be required. Corps district offices may develop regional general permits if an NWP is not available, but this is an impractical and inefficient method for activities with minimal individual and cumulative adverse effects on the aquatic environment that are conducted across the Nation. Not all districts would develop these regional general permits for a variety of reasons. The regulated public, especially those companies that conduct activities in more than one Corps district, would be adversely affected by the widespread use of regional general permits because of the greater potential for lack of consistency and predictability in the authorization of similar activities with minimal individual and cumulative adverse effects on the aquatic environment. These companies would incur greater costs in their efforts to comply with different regional general permit requirements between Corps districts. Nevertheless, in some states Corps districts have issued programmatic general permits to take the place of this and other NWPs. However, this approach only works in states with regulatory programs comparable to the Corps Regulatory Program.

2.2 National Modification Alternatives

Since the Corps Nationwide Permit program began in 1977, the Corps has continuously strived to develop NWPs that authorize activities that result only in minimal individual and cumulative adverse effects on the aquatic environment. Every five years the Corps reevaluates the NWPs during the reissuance process, and may modify an NWP to address concerns for the aquatic environment. Utilizing collected data and institutional knowledge concerning activities authorized by the Corps regulatory program, the Corps reevaluates the potential impacts of activities authorized by NWPs. The Corps also uses substantive public comments on proposed NWPs to assess the expected impacts. This NWP was developed to authorize bank stabilization activities that have minimal individual and cumulative adverse effects on the aquatic environment. The Corps has considered suggested changes to the terms and conditions of this NWP, as well as modifying or adding NWP general conditions, as discussed in the preamble of the Federal Register notice announcing the reissuance of this

NWP.

In the February 16, 2011, Federal Register notice, the Corps requested comments on the proposed reissuance of this NWP. The Corps proposed to modify this NWP by prohibiting discharges that exceed one cubic yard per running foot of bank stabilization, unless the permittee is using bioengineering techniques. The Corps also proposed to add terms to this NWP stating that temporary fills, structures, and work are authorized, provided the affected areas are restored and the temporary fills will not be eroded by expected high flows.

2.3 Regional Modification Alternatives

An important aspect for the NWPs is the emphasis on regional conditions to address differences in aquatic resource functions, services, and values across the nation. All Corps divisions and districts are expected to add regional conditions to the NWPs to enhance protection of the aquatic environment and address local concerns. Division engineers can also revoke an NWP if the use of that NWP results in more than minimal individual and cumulative adverse effects on the aquatic environment, especially in high value or unique wetlands and other waters.

Corps divisions and districts also monitor and analyze the cumulative adverse effects of the NWPs, and if warranted, further restrict or prohibit the use of the NWPs to ensure that the NWPs do not authorize activities that result in more than minimal individual and cumulative adverse effects on the aquatic environment. To the extent practicable, division and district engineers will use regulatory automated information systems and institutional knowledge about the typical adverse effects of activities authorized by NWPs, as well as substantive public comments, to assess the individual and cumulative adverse effects on the aquatic environment resulting from regulated activities.

2.4 Case-specific On-site Alternatives

Although the terms and conditions for this NWP have been established at the national level to authorize most activities that have minimal individual and cumulative adverse effects on the aquatic environment, division and district engineers have the authority to impose case-specific special conditions on NWP authorizations to ensure that the authorized activities will result in minimal individual and cumulative adverse effects.

General condition 23 requires the permittee to minimize and avoid impacts to waters of the United States to the maximum extent practicable on the project site. Off-site alternatives cannot be considered for activities authorized by NWPs. During the evaluation of a pre-construction notification, the district engineer may determine that additional avoidance and minimization is practicable. The district engineer may also condition the NWP authorization to require compensatory mitigation to offset losses of waters of the United States and ensure that the net adverse effects on the aquatic environment are minimal. As another example, the NWP authorization can be conditioned to prohibit the permittee from conducting the activity during specific times of the year to protect spawning fish and shellfish. If the

proposed activity will result in more than minimal adverse effects on the aquatic environment, then the district engineer will exercise discretionary authority and require an individual permit. Discretionary authority can be asserted where there are concerns for the aquatic environment, including high value aquatic habitats. The individual permit review process requires a project-specific alternatives analysis, including the consideration of off-site alternatives, and a public interest review.

3.0 Affected Environment

The affected environment consists of terrestrial and aquatic ecosystems. The total land area in the United States is approximately 2,300,000,000 acres, and the total land area in the contiguous United States is approximately 1,894,000,000 acres (Lubowski et al. 2006) . Land uses in 48 states of the contiguous United States as of 2002 is provided in Table 3.1 (Lubowski et al. 2006). In the contiguous United States, approximately 67 percent of the land is privately owned, 31 percent is held by the United States government, and two percent is owned by state or local governments (Dale et al. 2000). Developed non-federal lands comprise 4.4 percent of the total land area of the contiguous United States (Dale et al. 2000).

Table 3.1. Agricultural and non-agricultural land uses in the 48 states (Lubowski et al. 2006).

Land Use	Acres	Percent of Total
Agriculture	1,171,000,000	61.8
Forest land	425,000,000	22.4
Transportation use	27,000,000	1.4
Recreation and wildlife areas	100,000,000	5.3
National defense areas	15,000,000	0.8
Urban land	59,000,000	3.1
Miscellaneous use	97,000,000	5.1
Total land area	1,894,000,000	100.0

The Federal Geographic Data Committee has established the Cowardin system developed by the U.S. Fish and Wildlife Service (USFWS) (Cowardin et al. 1979) as the national standard for wetland mapping, monitoring, and data reporting (Dahl 2011) (see also http://www.fgdc.gov/standards/projects/FGDC-standards-projects/wetlands/fgdc-announce , accessed December 12, 2011). The Cowardin system is a hierarchical system which describes various wetland and deepwater habitats, using structural characteristics such as vegetation, substrate, and water regime as defining characteristics. Wetlands are defined by plant communities, soils, or inundation or flooding frequency. Deepwater habitats are permanently flooded areas located below the wetland boundary. In rivers and lakes, deepwater habitats are usually more than two meters deep.

There are five major systems in the Cowardin classification scheme: marine, estuarine, riverine, lacustrine, and palustrine (Cowardin et al. 1979). The marine system consists of

open ocean on the continental shelf and its high energy coastline. The estuarine system consists of tidal deepwater habitats and adjacent tidal wetlands that are usually partially enclosed by land, but may have open connections to open ocean waters. The riverine system generally consists of all wetland and deepwater habitats located within a river channel. The lacustrine system generally consists of wetland and deepwater habitats located within a topographic depression or dammed river channel, with a total area greater than 20 acres. The palustrine system generally includes all non-tidal wetlands and wetlands located in tidal areas with salinities less than 0.5 parts per thousand; it also includes ponds less than 20 acres in size. Approximately 95 percent of wetlands in the conterminous United States are freshwater wetlands, and the remaining 5 percent are estuarine or marine wetlands (Dahl 2011).

The Emergency Wetlands Resources Act of 1986 (Public Law 99-645) requires the USFWS to submit wetland status and trends reports to Congress (Dahl 2011). The latest status and trends report, which covers the period of 2004 to 2009, is summarized in Table 3.2.

Table 3.2. Estimated aquatic resource acreages in the conterminous United States in 2009 (Dahl 2011).

Aquatic Habitat Category	Estimated Area in 2009 (acres)
Marine intertidal	227,800
Estuarine intertidal non-vegetated	1,017,700
Estuarine intertidal vegetated	4,539,700
All intertidal waters and wetlands	5,785,200
Freshwater ponds	6,709,300
Freshwater vegetated	97,565,300
• Freshwater emergent wetlands	27,430,500
• Freshwater shrub wetlands	18,511,500
• Freshwater forested wetlands	51,623,300
All freshwater wetlands	104,274,600
Lacustrine deepwater habitats	16,859,600
Riverine deepwater habitats	7,510,500
Estuarine subtidal habitats	18,776,500
All wetlands and deepwater habitats	153,206,400

The acreage of lacustrine deepwater habitats does not include the open waters of Great Lakes (Dahl 2011).

According to Hall et al. (1994), there are more than 204 million acres of wetlands and deepwater habitats in the State of Alaska, including approximately 174.7 million acres of wetlands. Wetlands and deepwater habitats comprise approximately 50.7 percent of the

surface area in Alaska (Hall et al. 1994).

The National Resources Inventory (NRI) is a statistical survey conducted by the Natural Resources Conservation Service (NRCS) (USDA 2009) of natural resources on non-federal land in the United States. The NRCS defines non-federal land as privately owned lands, tribal and trust lands, and lands under the control of local and State governments. The land use determined by 2007 NRI is summarized in Table 3.3. The 2007 NRI estimates that there are 110,671,500 acres of palustrine and estuarine wetlands on non-Federal land and water areas in the United States (USDA 2009). The 2007 NRI estimates that there are 48,471,100 acres of open waters on non-Federal land in the United States, including lacustrine, riverine, and marine habitats, as well as estuarine deepwater habitats.

Table 3.3. The 2007 National Resources Inventory acreages for palustrine and estuarine wetlands on non-federal land, by land cover/use category (USDA 2009).

National Resources Inventory Land Cover/Use Category	Area of Palustrine and Estuarine Wetlands (acres)
cropland, pastureland, and Conservation Reserve Program land	16,790,300
forest land	66,043,100
rangeland	7,940,300
other rural land	14,744,800
developed land	1,571,900
water area	3,581,100
Total	110,671,500

The land cover/use categories used by the 2007 NRI are defined below (USDA 2009). Croplands are areas used to produce crops adapted for harvest. Pastureland is land managed for livestock grazing, through the production of introduced forage plants. Conservation Reserve Program land is under a Conservation Reserve Program contract. Forest land is comprised of at least 10 percent single stem woody plant species that will be at least 13 feet tall at maturity. Rangeland is land on which plant cover consists mostly of native grasses, herbaceous plants, or shrubs suitable for grazing or browsing, and introduced forage plant species. Other rural land consists of farmsteads and other farm structures, field windbreaks, marshland, and barren land. Developed land is comprised of large urban and built-up areas (i.e., urban and built-up areas 10 acres or more in size), small built-up areas (i.e., developed lands 0.25 to 10 acres in size) , and rural transportation land (e.g., roads, railroads, and associated rights-of-way outside urban and built-up areas). Water areas are comprised of waterbodies and streams that are permanent open waters.

The wetlands data from the Fish and Wildlife Service's Status and Trends study and the Natural Resources Conservation Service's National Resources Inventory should not be compared, because they use different methods and analyses to produce their results (Dahl

2011).

Leopold, Wolman, and Miller (1964) estimated that there are approximately 3,250,000 miles of river and stream channels in the United States. This estimate is based on an analysis of 1:24,000 scale topographic maps, by stream order. This estimate does not include many small streams. Many small streams are not mapped on 1:24,000 scale U.S. Geological Survey topographic maps (Leopold 1994) or included in other analyses (Meyer and Wallace 2001). In a study of stream mapping in the southeastern United States, only 20% of the stream network was mapped on 1:24,000 scale topographic maps, and nearly none of the observed intermittent or ephemeral streams were indicated on those maps (Hansen 2001). For a 1:24,000 scale topographic map, the smallest tributary found by using 10-foot contour interval has drainage area of 0.7 square mile and length of 1,500 feet, and smaller channels are common throughout the United States (Leopold 1994). Due to the difficulty in mapping small streams, there are no accurate estimates of the total number of river or stream miles in the conterminous United States that may be classified as "waters of the United States."

The USFWS status and trends study does not assess the condition or quality of wetlands and deepwater habitats (Dahl 2011). The Nation's aquatic resource base is underestimated by the USFWS status and trends study, the National Wetland Inventory (NWI), and studies that estimate the length or number of stream channels within watersheds (see above). The status and trends study does not include Alaska and Hawaii. The underestimate by the status and trends study and the NWI results from the minimum size of wetlands detected through remote sensing techniques and the difficulty of identifying certain wetland types through those remote sensing techniques. The NWI maps do not show small or linear wetlands (Tiner 1997) that may be directly impacted by activities authorized by NWPs. For the latest USFWS status and trends study, most of the wetlands identified are larger than 1 acre, but the minimum size of detectable wetlands varies by wetland type (Dahl 2011). Some wetland types less than one acre in size can be identified; the smallest wetland detected for the most recent status and trends report was 0.1 acre (Dahl 2011). Because of the limitations of remote sensing techniques, certain wetland types are not included in the USFWS status and trends study: seagrass beds, submerged aquatic vegetation, submerged reefs, and certain types of forested wetlands (Dahl 2011). Therefore, activities authorized by NWPs will adversely affect a smaller proportion of the Nation's wetland base than indicated by the wetlands acreage estimates provided in the most recent status and trends report, or the NWI maps for a particular region.

Information on water quality in waters and wetlands, as well as the causes of water quality impairment, is collected by the U.S. Environmental Protection Agency (U.S.EPA) under sections 305(b) and 303(d) of the Clean Water Act. Table 3.4 provides U.S. EPA's most recent national summary of water quality in the Nation's waters and wetlands.

Table 3.4. The 2010 national summary of water quality data (U.S. EPA 2012).

Category of water	Total waters	Total waters assessed	Percent of waters assessed	Good waters	Threatened waters	Impaired waters
Rivers and streams	3,533,205 miles	965,693 miles	27.3	445,079 miles	6,369 miles	514,246 miles
Lakes, reservoirs and ponds	41,666,049 acres	18,796,765 acres	45.1	5,833,964 acres	38,681 acres	12,924,120 acres
Bays and estuaries	87,791 square miles	32,830 square miles	37.4	11,045 square miles	17 square miles	21,768 square miles
Coastal shoreline	58,618 miles	9,143 miles	15.6	1,746 miles	0 miles	7,396 miles
Ocean and near coastal waters	54,120 square miles	1,275 square miles	2.4	968 square miles	0 square miles	307 square miles
Wetlands	107,700,000 acres	1,311,645 acres	1.2	208,944 acres	805 acres	1,101,895 acres
Great Lakes shoreline	5,202 miles	4,431 miles	85.2	78 miles	0 miles	4,353 miles
Great Lakes open waters	60,546 square miles	53,332 square miles	88.1	62 square miles	0 square miles	53,270 square miles

According to the 2010 national summary (U.S. EPA 2012), 53% of assessed rivers and streams, 66% of assessed bays and estuaries, 81% of assessed coastal shoreline, 24% of assessed ocean and near coastal waters, and 84% of assessed wetlands are impaired.

For rivers and streams, 34 causes of impairment were identified, and the top 10 causes were pathogens, sediment, nutrients, organic enrichment/oxygen depletion, polychlorinated biphenyls, habitat alterations, metals (excluding mercury), mercury, flow alterations, and temperature. The primary sources of impairment for the assessed rivers and streams were agriculture, atmospheric deposition, unknown sources, hydrology modification, urban-related runoff/stormwater, wildlife, municipal discharges/sewage, unspecified non-point sources, habitat alterations, and resource extraction.

For bays and estuaries, 28 causes of impairment were identified, and the top 10 causes of impairment were mercury, pathogens, polychlorinated biphenyls, organic enrichment/oxygen depletion, dioxins, metals (excluding mercury), noxious aquatic plants, pesticides, algal growth, and unknown causes of impaired biota. The primary sources of impairment of bays and estuaries were atmospheric deposition, "unknown," municipal discharges/sewage, wildlife, industrial, other sources, agriculture, unspecified non-point sources, hydrologic modifications, and habitat alterations.

For coastal shorelines, 17 causes of impairment were listed, led by mercury, pathogens,

organic enrichment/oxygen depletion, metals (excluding mercury), pesticides, polychlorinated biphenyls, turbidity, nutrients, algal growth, and unknown causes of impaired biota. The top 10 sources of impairment for coastal shorelines were "unknown," atmospheric deposition, urban-related runoff/stormwater, municipal discharges/sewage, agriculture, hydrologic modifications, industrial, unspecified non-point sources, wildlife, and recreational boating and marinas.

For ocean and near coastal waters, 16 causes of impairment were identified, and the top 10 causes of impairment were mercury, pathogens, organic enrichment/oxygen depletion, nuisance exotic species, toxics, polychlorinated biphenyls, turbidity, pesticides, metals, and toxic organics. Habitat alterations were ranked eleventh. The primary sources of impairment of ocean and near coastal waters were "unknown," atmospheric deposition, recreational boating and marinas, municipal discharges/sewage, unspecified non-point sources, urban-related runoff/stormwater, recreation and tourism (non-boating), industrial, hydrologic modifications, and construction.

For wetlands, 27 causes of impairment were identified, and the top 10 causes were organic enrichment/oxygen depletion, pathogens, mercury, metals (excluding mercury), habitat alterations, nutrients, flow alterations, toxic inorganics, total toxics, and sediment. The primary sources for wetland impairment were "unknown," wildlife, municipal discharges/sewage, agriculture, atmospheric deposition, industrial, hydrology modifications, resource extraction, other, and unspecified non-point sources.

Most causes and sources of impairment are not due to activities regulated under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Habitat alterations as a cause or source of impairment may be the result of activities regulated under section 404 and section 10 because they involve discharges of dredged or fill material or structures or work in navigable waters, but habitat alterations may also occur as a result of activities not regulated under those two statutes, such as the removal of vegetation from upland riparian areas. Hydrologic modifications may or may not be regulated under section 404 or section 10.

Not all of the Nation's aquatic resources are subject to regulatory jurisdiction under Section 404 of the Clean Water Act. Waters of the United States subject to Section 404 of the Clean Water Act are defined at 33 CFR part 328. Some wetlands are not subject to Clean Water Act jurisdiction because they do not meet the criteria at Part 328. In its decision in *Solid Waste County of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001), the U.S. Supreme Court ruled that Clean Water Act jurisdiction does not apply to isolated, intrastate, non-navigable waters based on their use as habitat for migratory birds. Tiner (2003) estimated that in some areas of the country, the proportion of wetlands that are geographically isolated, and may not be subject to Clean Water Act jurisdiction is approximately 20 to 50 percent of the wetland area, and there are other areas where more than 50 percent of the wetlands are geographically isolated. Geographically isolated wetlands comprise a substantial proportion of the wetlands found in regions with arid, semi-arid, and semi-humid climates, as well as areas with karst topography (Tiner 2003).

However, it is difficult to determine from maps or aerial photographs whether wetlands are hydrologically isolated from other waters, because there may be small surface hydrologic connections that are not included on those maps or detected by those photographs (Tiner 2003). The scope of waters subject to Clean Water Act jurisdiction has also been affected by the U.S. Supreme Court decision in the consolidated cases of *Rapanos v. U.S.* and *Carabell v. U.S.*, but there have been no formal studies to estimate the proportion of wetlands, streams, and other aquatic resources that may have been affected by that decision.

This NWP authorizes discharges of dredged or fill material into all waters of the United States. These waters are included in the marine, estuarine, palustrine, lacustrine, and riverine systems of the Cowardin classification system.

Wetland functions are the biophysical processes that occur within a wetland (King et al. 2000). Wetlands provide many functions, such as habitat for fish and shellfish, habitat for waterfowl and other wildlife, habitat for rare and endangered species, food production, plant production, flood conveyance, flood-peak reduction, flood storage, shoreline stabilization, water supply, ground water recharge, pollutant removal, sediment accretion, and nutrient uptake (NRC 1992).

Functions provided by streams include sediment transport, water transport, transport of nutrients and detritus, habitat for many species of plants and animals (including endangered or threatened species), and maintenance of biodiversity (NRC 1992). Streams also provide hydrologic functions, nutrient cycling functions, food web support, and corridors for movement of aquatic organisms (Allan and Castillo 2007).

Freshwater ecosystems provide services such as water for drinking, household uses, manufacturing, thermoelectric power generation, irrigation, and aquaculture; production of finfish, waterfowl, and shellfish; and non-extractive services, such as flood control, transportation, recreation (e.g., swimming and boating), pollution dilution, hydroelectric generation, wildlife habitat, soil fertilization, and enhancement of property values (Postel and Carpenter 1997).

Marine ecosystems provide a number of ecosystem services, including fish production; materials cycling (e.g., nitrogen, carbon, oxygen, phosphorous, and sulfur); transformation, detoxification, and sequestration of pollutants and wastes produced by humans; support of ocean-based recreation, tourism, and retirement industries; and coastal land development and valuation, including aesthetics related to living near the ocean (Peterson and Lubchenco 1997).

Activities authorized by this NWP will provide a wide variety of services that are valued by society. For example, bank stabilization activities help protect property from erosion. Bank stabilization activities also help improve water quality by reducing sediment inputs into streams and other open waters.

4.0 Environmental Consequences

4.1 General Evaluation Criteria

This document contains a general assessment of the foreseeable effects of the individual activities authorized by this NWP and the anticipated cumulative effects of those activities. In the assessment of these individual and cumulative effects, the terms and limits of the NWP, pre-construction notification requirements, and the standard NWP general conditions are considered. The supplemental documentation provided by division engineers will address how regional conditions affect the individual and cumulative effects of the NWP.

The following evaluation comprises the NEPA analysis, the public interest review specified in 33 CFR 320.4(a)(1) and (2), and the impact analysis specified in Subparts C through F of the 404(b)(1) Guidelines (40 CFR Part 230).

The issuance of an NWP is based on a general assessment of the effects on public interest and environmental factors that are likely to occur as a result of using this NWP to authorize activities in waters of the United States. As such, this assessment must be speculative or predictive in general terms. Since NWPs authorize activities across the nation, projects eligible for NWP authorization may be constructed in a wide variety of environmental settings. Therefore, it is difficult to predict all of the indirect impacts that may be associated with each activity authorized by an NWP. For example, the NWP that authorizes 25 cubic yard discharges of dredged or fill material into waters of the United States may be used to fulfill a variety of project purposes. Indication that a factor is not relevant to a particular NWP does not necessarily mean that the NWP would never have an effect on that factor, but that it is a factor not readily identified with the authorized activity. Factors may be relevant, but the adverse effects on the aquatic environment are negligible, such as the impacts of a boat ramp on water level fluctuations or flood hazards. Only the reasonably foreseeable direct or indirect effects are included in the environmental assessment for this NWP. Division and district engineers will impose, as necessary, additional conditions on the NWP authorization or exercise discretionary authority to address locally important factors or to ensure that the authorized activity results in no more than minimal individual and cumulative adverse effects on the aquatic environment. In any case, adverse effects will be controlled by the terms, conditions, and additional provisions of the NWP. For example, Section 7 Endangered Species Act consultation will be required for activities that may affect endangered or threatened species or critical habitat.

4.2 Impact Analysis

This NWP authorizes bank stabilization activities in all waters of the United States. There is a 500 linear foot limit for these activities, which can be waived by the district engineer on a case-by-case basis upon a determination that the bank stabilization will result in minimal adverse effects on the aquatic environment and other public interest review factors. Discharges of dredged or fill material for bank stabilization activities cannot exceed an average of one cubic yard per running food below the plane of the ordinary high water mark

or the high tide line, unless the district engineer waives this limit in writing after determining that the adverse effects on the aquatic environment and other public interest factors will be minimal.

Pre-construction notification is required for: (1) discharges into special aquatic sites; or (2) activities in excess of 500 feet in length; or (3) discharges of greater than an average of one cubic yard per running foot along the bank below the plane of the ordinary high water mark or the high tide line. The pre-construction notification requirement allows district engineers to review proposed NWP activities on a case-by-case basis to ensure that the individual and cumulative adverse effects of those activities on the aquatic environment are minimal. If the district engineer determines that the adverse effects of a particular project are more than minimal after considering mitigation, then discretionary authority will be asserted and the applicant will be notified that another form of DA authorization, such as a regional general permit or individual permit, is required (see 33 CFR 330.4(e) and 330.5).

Additional conditions can be placed on proposed activities on a regional or case-by-case basis to ensure that the activities have minimal individual and cumulative adverse effects on the aquatic environment. Regional conditioning of this NWP will be used to account for differences in aquatic resource functions, services, and values across the country, ensure that the NWP authorizes only those activities with minimal individual and cumulative adverse effects on the aquatic environment, and allow each Corps district to prioritize its workload based on where its efforts will best serve to protect the aquatic environment. Regional conditions can prohibit the use of an NWP in certain waters (e.g., high value waters or specific types of wetlands or waters), lower pre-construction notification thresholds, or require pre-construction notification for some or all NWP activities in certain watersheds or types of waters. Specific NWPs can also be revoked on a geographic or watershed basis where the individual and cumulative adverse effects resulting from the use of those NWPs are more than minimal.

In high value waters, division and district engineers can: 1) prohibit the use of the NWP in those waters and require an individual permit or regional general permit; 2) impose an acreage or linear foot limit on the NWP; 3) lower the pre-construction notification threshold of the NWP to require pre-construction notification for NWP activities with smaller impacts in those waters; 4) require pre-construction notification for some or all NWP activities in those waters; 5) add regional conditions to the NWP to ensure that the individual and cumulative adverse environmental effects are minimal; or 6) for those NWP activities that require pre-construction notification, add special conditions to NWP authorizations, such as compensatory mitigation requirements, to ensure that the adverse effects on the aquatic environment are minimal. NWPs can authorize activities in high value waters as long as the individual and cumulative adverse effects on the aquatic environment are minimal.

The construction and use of fills for temporary access for construction may be authorized by NWP 33 or regional general permits issued by division or district engineers. The related activity must meet the terms and conditions of the specified permit(s). If the discharge is dependent on portions of a larger project that require an individual permit, this NWP will not

apply. [See 33 CFR 330.6(c) and (d)]

4.3 Cumulative Effects

The Council on Environmental Quality's NEPA regulations define cumulative effects as: "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." [40 CFR 1508.7.] Therefore, the NEPA cumulative effects analysis for an NWP is not limited to activities authorized by the NWP or other DA permits and includes Federal and non-Federal activities that affect the Nation's wetlands, streams, and other aquatic resources. The cumulative effects analysis should focus on specific categories of resources instead of the environmental effects caused by a particular action, and it requires identification of the stressors that cause degradation of those resources, including those caused by actions unrelated to the proposed action (CEQ 1997). The geographic scope of the cumulative impacts analysis is the United States and its territories, where the NWP may be used to authorize specific activities that require DA authorization. The temporal scope of the cumulative effects analysis includes past actions that have affected the Nation's wetlands, streams, and other aquatic resources, as well as present actions and reasonably foreseeable future actions that are affecting, or will affect, wetlands, streams, and other aquatic resources. The present effects of past federal, non-federal, and private actions are included in the affected environment, which is described in Section 3.0. The affected environment includes current aggregate effects of past actions, which are captured in recent national information on the quantity and quality of wetlands, streams, and other aquatic resources that is summarized in Section 3.0.

In addition to the activities authorized by this NWP, there are many activities that contribute to cumulative effects on wetlands, streams, and other aquatic resources in the United States, and alter the quantity of those resources and the functions they provide. Activities authorized by past versions of NWP 13, as well as other NWPs, individual permits, letters of permission, and regional general permits have resulted in direct and indirect impacts to wetlands, streams, and other aquatic resources. Those activities may have legacy effects that have added to the cumulative effects and affected the quantity of those resources and the functions they provide. Discharges of dredged or fill material that do not require DA permits because they are exempt from section 404 permit requirements can also adversely affect the quantity of the Nation's wetlands, streams, and other aquatic resources and the functions they provide. Discharges of dredged or fill material that convert wetlands, streams, and other aquatic resources to upland areas result in permanent losses of aquatic resource functions. Temporary fills and fills that do not convert waters or wetlands to dry land may cause short-term or partial losses of aquatic resource functions.

Cumulative effects to wetlands, streams, and other aquatic resources in the United States are not limited to the effects caused by activities regulated and authorized by the Corps under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

Other federal, non-federal, and private activities also contribute to the cumulative effects to wetlands, streams, and other aquatic resources, by changing the quantity of those resources and the functions they provide. Cumulative effects to wetlands, streams, and other aquatic resources are the result of landscape-level processes (Gosselink and Lee 1989). As discussed in more detail below, cumulative effects to aquatic resources are caused by a variety of activities (including activities that occur entirely in uplands) that take place within a landscape unit, such as the watershed for a river or stream (e.g., Allan 2004, Paul and Meyer 2001, Leopold 1968) or the contributing drainage area for a wetland (e.g., Wright et al. 2006, Brinson and Malvárez 2002, Zedler and Kercher 2005).

The ecological condition of rivers and streams is dependent on the state of their watersheds (NRC 1992), because they are affected by activities that occur in those watersheds, including agriculture, urban development, deforestation, mining, water removal, flow alteration, and invasive species (Palmer et al. 2010). Land use changes affect rivers and streams through increased sedimentation, larger inputs of nutrients (e.g., nitrogen, phosphorous) and pollutants (e.g., heavy metals, synthetic chemicals, toxic organics), altered stream hydrology, the alteration or removal of riparian vegetation, and the reduction or elimination of inputs of large woody debris (Allen 2004). Agriculture is the primary cause of stream impairment, followed by urbanization (Paul and Meyer 2001). Agricultural land use adversely affects stream water quality, habitat, and biological communities (Allan 2004). Urbanization causes changes to stream hydrology (e.g., higher flood peaks, lower base flows), sediment supply and transport, water chemistry, and aquatic organisms (Paul and Meyer 2001). Leopold (1968) found that land use changes affect the hydrology of an area by altering stream flow patterns, total runoff, water quality, and stream structure. Changes in peak flow patterns and runoff affect stream channel stability. Stream water quality is adversely affected by increased inputs of sediments, nutrients, and pollutants, many of which come from non-point sources (Paul and Meyer 2001, Allan and Castillo 2007).

The construction and operation of water-powered mills in the 17th to 19th centuries substantially altered the structure and function of streams in the eastern United States (Walter and Merritts 2008) and those effects have persisted to the present time. In urbanized and agricultural watersheds, the number of small streams has been substantially reduced, in part by activities that occurred between the 19th and mid-20th centuries (Meyer and Wallace 2001). Activities that affect the quantity and quality of small streams include residential, commercial, and industrial development, mining, agricultural activities, forestry activities, and road construction (Meyer and Wallace 2001), even if those activities are located entirely in uplands.

Activities that affect wetland quantity and quality include: land use changes that alter local hydrology (including water withdrawal), clearing and draining wetlands, constructing levees that sever hydrologic connections between rivers and floodplain wetlands, constructing other obstructions to water flow (e.g., dams, locks), constructing water diversions, inputs of nutrients and contaminants, and fire suppression (Brinson and Malvárez 2002). Upland development adversely affects wetlands and reduces wetland functionality because those activities change surface water flows and alter wetland hydrology, contribute stormwater and

associated sediments, nutrients, and pollutants, cause increases in invasive plant species abundance, and decrease the diversity of native plants and animals (Wright et al. 2006). Many of the remaining wetlands in the United States are degraded (Zedler and Kercher 2005). Wetland degradation and losses are caused by changes in water movement and volume within a watershed or contributing drainage area, altered sediment transport, drainage, inputs of nutrients from non-point sources, water diversions, fill activities, excavation activities, invasion by non-native species, land subsidence, and pollutants (Zedler and Kercher 2005).

Coastal waters are also affected by a wide variety of activities. Most inland waters in the United States drain to coastal areas, and therefore activities that occur in inland watersheds affect coastal waters (NRC 1994). Adverse effects to coastal waters are caused by habitat modifications, point source pollution, non-point source pollution, changes to hydrology and hydrodynamics, exploitation of coastal resources, introduction of non-native species, global climate change, shoreline erosion, and pathogens and toxins (NRC 1994). Eutrophication of coastal waters is caused by nutrients contributed by waste treatment systems, non-point sources, and the atmosphere, and may cause hypoxia or anoxia in coastal waters (NRC 1994). Inland land uses, such as agriculture, urban development, and forestry, adversely affect coastal waters by diverting fresh water from estuaries and by acting as sources of nutrients and pollutants to coastal waters (Millennium Ecosystem Assessment 2005). Habitat modifications are the result of dredging or filling coastal waters, inputs of sediment via non-point sources, changes in water quality, or alteration of coastal hydrodynamics (NRC 1994). Coastal development activities, including those that occur in uplands, affect marine and estuarine habitats (Millennium Ecosystem Assessment 2005). The introduction of non-native species may change the functions and structure of coastal wetlands and other habitats (Millennium Ecosystem Assessment 2005). Substantial alterations of coastal hydrology and hydrodynamics are caused by land use changes in watersheds draining to coastal waters, the channelization or damming of streams and rivers, water consumption, and water diversions (NRC 1994). Changes in water movement through watersheds may also alter sediment delivery to coastal areas, which affects the sustainability of wetlands and intertidal habitats and the functions they provide (NRC 1994). Fishing activities may also modify coastal habitats by changing habitat structure and the biological communities that inhabit those areas (NRC 1994).

There is also little information on the ecological condition or the Nation's wetlands, streams, and other aquatic resources, or the amounts of functions they provide, although reviews have acknowledged that most of these resources are degraded (Zedler and Kercher 2005, Allan 2004) or impaired (U.S. EPA 2012) because of various activities and other stressors. These data deficiencies make it more difficult to characterize the affected environment to assess cumulative effects.

As discussed in Section 3.0 of this document there is a wide variety of causes and sources of impairment of the Nation's rivers, streams, wetlands, lakes, estuarine waters, and marine waters (U.S. EPA 2012), which also contribute to cumulative effects to aquatic resources. Many of those causes of impairment are point and non-point sources of pollutants that are

not regulated under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899. Two common causes of impairment for rivers and streams, habitat alterations and flow alterations, may be due in part to activities regulated by the Corps under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899. Habitat and flow alterations may also be the caused by activities that do not involve discharges of dredged or fill material or structures or work in navigable waters. For wetlands, impairment due to habitat alterations, flow alterations, and hydrology modifications may involve activities regulated under section 404, but these causes of impairment may also be due to unregulated activities, such as changes in upland land use that affects the movement of water through a watershed or contributing drainage area or the removal of vegetation.

Many of the activities discussed in this cumulative effects section that affect wetlands, streams, and other aquatic resources are not subject to regulation under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899.

Dahl (1990) estimates that approximately 53 percent of the wetlands in the conterminous United States were lost in the 200-year period covering the 1780s to 1980s. The annual rate of wetland loss has decreased substantially since the 1970s (Dahl 2011), when wetland regulation became more prevalent (Brinson and Malvárez 2002). Between 2004 and 2009, there was no statistically significant difference in wetland acreage in the conterminous United States (Dahl 2011). According to the 2011 wetland status and trends report, during the period of 2004 to 2009 urban development accounted for 11% of wetland losses (61,630 acres), rural development resulted in 12% of wetland losses (66,940 acres), silviculture accounted for 56% of wetland losses (307,340 acres), and wetland conversion to deepwater habitats caused 21% of the loss in wetland area (115,960 acres) (Dahl 2011). Some of the losses occurred to wetlands that are not subject to Clean Water Act jurisdiction and some losses are due to activities not regulated under Section 404 of the Clean Water Act, such as unregulated drainage activities, exempt forestry activities, or water withdrawals. From 2004 to 2009, approximately 100,020 acres of wetlands were gained as a result of wetland restoration and conservation programs on agricultural land (Dahl 2011). Another source of wetland gain is conversion of other uplands to wetlands (389,600 acres during 2004 to 2009) (Dahl 2011). Inventories of wetlands, streams, and other aquatic resources are incomplete because the techniques used cannot identify some of those resources (e.g., Dahl (2011) for wetlands; Meyer and Wallace (2001) for streams).

Compensatory mitigation required by district engineers for specific activities authorized by this NWP will help reduce the contribution of those activities to the cumulative effects on the Nation's wetlands, streams, and other aquatic resources, by providing ecological functions to partially or fully replace some or all of the aquatic resource functions lost as a result of those activities. Compensatory mitigation requirements for the NWPs are described in general condition 23 and compensatory mitigation projects must also comply with the applicable provisions of 33 CFR part 332. District engineers will establish compensatory mitigation requirements on a case-by-case basis, after evaluating pre-construction notifications. Compensatory mitigation requirements for individual NWP activities will be

specified through permit conditions added to NWP authorizations. When compensatory mitigation is required, the permittee is required to submit a mitigation plan prepared in accordance with the requirements of 33 CFR 332.4(c). Credits from approved mitigation banks or in-lieu fee programs may also be used to satisfy compensatory mitigation requirements for NWP authorizations. Monitoring is required to demonstrate whether the permittee-responsible mitigation project, mitigation bank, or in-lieu fee project is meeting its objectives and providing the intended aquatic resource structure and functions. If the compensatory mitigation project is not meeting its objectives, adaptive management will be required. Adaptive management may involve taking actions, such as site modifications, remediation, or design changes, to ensure the compensatory mitigation project meets its objectives (see 33 CFR 332.7(c)).

The estimated contribution of this NWP to the cumulative effects to aquatic resources in the United States during the five year period that the NWP would be in effect, in terms of the estimated number of time this NWP would be used until it expires and the projected impacts and compensatory mitigation, is provided in Section 6.2.2. The activities authorized by this NWP will result in minor contributions to the cumulative effects that have occurred to wetlands, streams, and other aquatic resources in the United States because, as discussed in this section, they are one of many activities that affect those resources. The causes of cumulative effects discussed in this section include past, present, and reasonably foreseeable future federal, non-federal, and private activities. For the national-scale cumulative effects analysis presented in this section, it is not possible to quantify the relative contributions of the various activities that affect the quantity of wetlands, streams, and other aquatic resources and the functions they provide, because such data are not available at the national scale.

In a specific watershed, division or district engineers may determine that the cumulative adverse effects of activities authorized by this NWP are more than minimal. Division and district engineers will conduct more detailed assessments for geographic areas that are determined to be potentially subject to more than minimal cumulative adverse effects. Division and district engineers have the authority to require individual permits in watersheds or other geographic areas where the cumulative adverse effects are determined to be more than minimal, or add conditions to the NWP either on a case-by-case or regional basis to require mitigation measures to ensure that the cumulative adverse effects are minimal. When a division or district engineer determines, using local or regional information, that a watershed or other geographic area is subject to more than minimal cumulative adverse effects due to the use of this NWP, he or she will use the revocation and modification procedure at 33 CFR 330.5. In reaching the final decision, the division or district engineer will compile information on the cumulative adverse effects and supplement this document.

The Corps expects that the convenience and time savings associated with the use of this NWP will encourage applicants to design their projects within the scope of the NWP rather than request individual permits for projects which could result in greater adverse impacts to the aquatic environment. The minimization encouraged by the issuance of this NWP, as well as compensatory mitigation that may be required for specific activities authorized by this

NWP, will help reduce cumulative effects to the Nation's wetlands, streams, and other aquatic resources.

5.0 Public Interest Review

5.1 Public Interest Review Factors (33 CFR 320.4(a)(1))

For each of the 20 public interest review factors, the extent of the Corps consideration of expected impacts resulting from the use of this NWP is discussed, as well as the reasonably foreseeable cumulative adverse effects that are expected to occur. The Corps decision-making process involves consideration of the benefits and detriments that may result from the activities authorized by this NWP.

(a) Conservation: The activities authorized by this NWP may modify the natural resource characteristics of the project area. Compensatory mitigation, if required for activities authorized by this NWP, will result in the restoration, enhancement, establishment, or preservation of aquatic habitats that will offset losses of conservation values. The adverse effects of activities authorized by this NWP on conservation will be minor.

(b) Economics: Bank stabilization activities will have positive impacts on the local economy. During construction, these activities will generate jobs and revenue for local contractors as well as revenue to building supply companies that sell construction materials. Bank stabilization activities will protect public and private property, and help landowners retain the value of their properties. Activities authorized by this NWP will also benefit the community by improving the local economic base, which is affected by employment, tax revenues, community services, and property values.

(c) Aesthetics: Bank stabilization activities will alter the visual character of some waters of the United States. The extent and perception of these changes will vary, depending on the size and configuration of the bank stabilization activity, the nature of the surrounding area, and the public uses of the area. Activities authorized by this NWP can also modify other aesthetic characteristics, such as air quality and the amount of noise. The increased human use of the project area and surrounding land will also alter local aesthetic values.

(d) General environmental concerns: Activities authorized by this NWP will affect general environmental concerns, such as water, air, noise, and land pollution. The authorized activities will also affect the physical, chemical, and biological characteristics of the environment. The adverse effects of the activities authorized by this NWP on general environmental concerns will be minor. Adverse effects to the chemical composition of the aquatic environment will be controlled by general condition 6, which states that the material used for construction must be free from toxic pollutants in toxic amounts. General condition 23 requires mitigation to minimize adverse effects to the aquatic environment through avoidance and minimization at the project site. Compensatory mitigation may be required by district engineers to ensure that the net adverse effects on the aquatic environment are

minimal. Specific environmental concerns are addressed in other sections of this document.

(e) Wetlands: Bank stabilization activities in waters of the United States may result in the loss or alteration of wetlands. In most cases, the affected wetlands will be permanently filled, especially where bank stabilization structures or fills are located, resulting in the permanent loss of aquatic resource functions and values. Wetlands may also be converted to other uses and habitat types. Some wetlands may be temporarily impacted by the activity through the use of temporary staging areas and access roads. These wetlands will be restored, unless the district engineer authorizes another use for the area, but the plant community may be different. Compensatory mitigation may be required to offset the loss of wetlands and ensure that the adverse effects to the aquatic environment are minimal.

Wetlands provide habitat, including foraging, nesting, spawning, rearing, and resting sites for aquatic and terrestrial species. The loss or alteration of wetlands may alter natural drainage patterns. Wetlands reduce erosion by stabilizing the substrate. Wetlands also act as storage areas for stormwater and flood waters. Wetlands may act as groundwater discharge or recharge areas. The loss of wetland vegetation will adversely affect water quality because these plants trap sediments, pollutants, and nutrients and transform chemical compounds. Wetland vegetation also provides habitat for microorganisms that remove nutrients and pollutants from water. Wetlands, through the accumulation of organic matter, act as sinks for some nutrients and other chemical compounds, reducing the amounts of these substances in the water.

General condition 23 requires avoidance and minimization of impacts to waters of the United States, including wetlands, at the project site. Compensatory mitigation may be required by district engineers to ensure that the net adverse effects on the aquatic environment are minimal. General condition 22 requires submittal of a pre-construction notification prior to use of this NWP in designated critical resource waters and adjacent wetlands, which may include high value wetlands. District engineers can add case-specific special conditions to the NWP authorization to provide protection to wetlands or require compensatory mitigation to offset impacts to wetlands.

(f) Historic properties: General condition 20 states that in cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act have been satisfied.

(g) Fish and wildlife values: This NWP authorizes activities in all waters of the United States, including oceans, estuaries, lakes, and rivers, which provide habitat to many species of fish and wildlife. Activities authorized by this NWP may alter the habitat characteristics of open waters, decreasing the quantity and quality of fish and wildlife habitat. Riparian vegetation may be removed to construct the bank stabilization activity. Riparian vegetation provides food and habitat for many species, including foraging areas, resting areas, corridors for wildlife movement, and nesting and breeding grounds. Open waters provide habitat for fish and other aquatic organisms. Woody riparian vegetation shades streams, which reduces

water temperature fluctuations and provides habitat for fish and other aquatic animals. Riparian vegetation provides organic matter that is consumed by fish and aquatic invertebrates. Woody riparian vegetation creates habitat diversity in streams when trees and large shrubs fall into the channel, forming snags that provide habitat and shade for fish. The morphology of a stream channel may be altered by activities authorized by this NWP, which can affect fish populations. Compensatory mitigation may be required by district engineers to restore, enhance, establish, and/or preserve wetlands to offset losses of waters of the United States. Stream rehabilitation, enhancement, and preservation activities may be required as compensatory mitigation for impacts to streams. The establishment and maintenance of riparian areas next to open and flowing waters may also be required as compensatory mitigation. These methods of compensatory mitigation will provide fish and wildlife habitat values.

General condition 2 will reduce the adverse effects to fish and other aquatic species by prohibiting activities that substantially disrupt the necessary life cycle movements of indigenous aquatic species, unless the primary purpose of the activity is to impound water. Compliance with general conditions 3 and 5 will ensure that the authorized activity has minimal adverse effects on spawning areas and shellfish beds, respectively. The authorized activity cannot have more than minimal adverse effects on breeding areas for migratory birds, due to the requirements of general condition 4.

Compliance with the Bald and Golden Eagle Protection Act (16 U.S.C. 668(a)-(d)), the Migratory Bird Treaty Act (16 U.S.C. 703; 16 U.S.C. 712), and the Marine Mammal Protection Act (16 U.S.C. 1361 et seq.), including any requirements to obtain take permits, is the responsibility of the project proponent for a particular NWP activity. General condition 19 states that the permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act.

Consultation pursuant to the essential fish habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act will occur as necessary for proposed NWP activities that may adversely affect essential fish habitat. Consultation may occur on a case-by-case or programmatic basis. Division and district engineers can impose regional and special conditions to ensure that activities authorized by this NWP will result in minimal adverse effects on essential fish habitat.

(h) Flood hazards: The activities authorized by this NWP may affect the flood-holding capacity of 100-year floodplains, including surface water flow velocities. Changes in the flood-holding capacity of 100-year floodplains may impact human health, safety, and welfare. Compliance with general condition 9 will reduce flood hazards. This general condition requires the permittee to maintain, to the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters, except under certain circumstances. Much of the land area within 100-year floodplains is upland, and outside of the Corps scope of review.

(i) Floodplain values: Activities authorized by this NWP may affect the flood-holding capacity of the floodplain, as well as other floodplain values. The fish and wildlife habitat values of floodplains may be adversely affected by activities authorized by this NWP, by modifying or eliminating areas used for nesting, foraging, resting, and reproduction. The activities authorized by this NWP are likely to have negligible adverse effects on the water quality functions of floodplains. For those NWP activities that require pre-construction notification, district engineers will review the proposed activities to ensure that those activities result in minimal adverse effects on the aquatic environment.

Compensatory mitigation may be required for activities authorized by this NWP, which will offset losses of waters of the United States and provide water quality functions and wildlife habitat. General condition 23 requires avoidance and minimization of impacts to waters of the United States to the maximum extent practicable at the project site, which will reduce losses of floodplain values. The mitigation requirements of general condition 23 will help ensure that the adverse effects of these activities on floodplain values are minimal. Compliance with general condition 9 will also ensure that activities in 100-year floodplains will not cause more than minimal adverse effects on flood storage and conveyance.

(j) Land use: Activities authorized by this NWP will have minor direct effects on land use. Bank stabilization activities are usually done where the land has already been developed. The activities authorized by this NWP will help maintain current land use, by protecting property from erosion. Since the primary responsibility for land use decisions is held by state, local, and Tribal governments, the Corps scope of review is limited to significant issues of overriding national importance, such as navigation and water quality (see 33 CFR 320.4(j)(2)).

(k) Navigation: Activities authorized by this NWP must comply with general condition 1, which states that no activity may cause more than minimal adverse effects on navigation. Bank stabilization activities are usually constructed near the shore, and do not affect navigable access. This NWP requires pre-construction notification for bank stabilization activities that: (1) involve discharges into special aquatic sites; or (2) exceed 500 feet in length; or (3) involve the discharge of greater than an average of one cubic yard per running foot along the bank below the plane of the ordinary high water mark or the high tide line. The pre-construction notification requirement will allow district engineers to review the proposed activities and determine if there will be any adverse effects on navigation.

(l) Shore erosion and accretion: The activities authorized by this NWP will reduce shore erosion and will have minor adverse effects on shore accretion processes. The pre-construction notification requirements of this NWP will allow district engineers to review, on a case-by-case basis, larger bank stabilization activities that may have more than minimal adverse effects on shore erosion and accretion processes. In addition, division engineers can regionally condition this NWP to restrict or prohibit its use in areas where potential adverse effects to shore erosion and accretion may be more than minimal. Division engineers can also regionally condition this NWP to restrict or prohibit certain types of bank stabilization measures, such as bulkheads and seawalls, that may result in more than minimal adverse

effects to the aquatic environment.

(m) Recreation: Activities authorized by this NWP may change the recreational uses of the project area. Bank stabilization activities may have minor adverse effects on recreational uses. For example, the installation of bank stabilization measures may reduce the amount of beach available for recreation. Bank stabilization activities may also protect recreational facilities, thereby allowing continued use of those facilities. Certain recreational activities, such as beach combing, bird watching, hunting, and fishing may no longer be available in the area.

(n) Water supply and conservation: Activities authorized by this NWP will have negligible adverse effects on surface water and groundwater supplies. Activities authorized by this NWP will not increase demand for potable water in the region. Bank stabilization activities will have little or no adverse effects on the replenishment of groundwater supplies or the amount of water available in reservoirs. Division and district engineers can prohibit the use of this NWP in watersheds for public water supplies, if it is in the public interest to do so. General condition 7 prohibits discharges in the vicinity of public water supply intakes. Compensatory mitigation may be required for activities authorized by this NWP, which will help improve the quality of surface waters.

(o) Water quality: The activities authorized by this NWP may enhance water quality. Bank stabilization activities reduce sediment loads to surface waters by reducing erosion. The loss of riparian vegetation will adversely affect water quality because these plants trap sediments, pollutants, and nutrients and transform chemical compounds. Riparian vegetation also provides habitat for microorganisms that remove nutrients and pollutants from water. Riparian areas also decrease the velocity of flood waters, removing suspended sediments from the water column and reducing turbidity. Riparian vegetation also serves an important role in the water quality of streams by shading the water from the intense heat of the sun. Compensatory mitigation may be required for activities authorized by this NWP, to ensure that the activities do not have more than minimal adverse effects on the aquatic environment, including water quality. Wetlands and riparian areas restored, established, enhanced, or preserved as compensatory mitigation may provide local water quality benefits.

During construction, small amounts of oil and grease from construction equipment may be discharged into the waterway. Because most of the construction will occur during a relatively short period of time, the frequency and concentration of these discharges are not expected to have more than minimal adverse effects on overall water quality.

This NWP requires a Section 401 water quality certification, since it authorizes discharges of dredged or fill material into waters of the United States. Most water quality concerns are addressed by the state or Tribal Section 401 agency.

(p) Energy needs: The activities authorized by this NWP may temporarily increase energy consumption in the area, especially electricity, natural gas, and petroleum products, during construction. Bank stabilization activities will not adversely affect long-term energy needs.

(q) Safety: The activities authorized by this NWP will be subject to Federal, state, and local safety laws and regulations. Therefore, this NWP will not adversely affect the safety of the project area.

(r) Food and fiber production: Activities authorized by this NWP will have negligible adverse effects on food and fiber production. Bank stabilization activities may help maintain food and fiber production by protecting farmland from erosion. Food production facilities, such as bakeries, canneries, and meat processing plants, that are constructed near open waters may be protected by bank stabilization activities. The activities authorized by this NWP will have minor adverse effects on aquatic food production, since bank stabilization activities are constructed near the shore.

(s) Mineral needs: Activities authorized by this NWP will increase demand for aggregates and stone, which are used to construct revetments and other bank stabilization measures. Activities authorized by this NWP may increase the demand for other building materials, such as steel, aluminum, and copper, which are made from mineral ores.

(t) Considerations of property ownership: The NWP complies with 33 CFR 320.4(g), which states that an inherent aspect of property ownership is a right to reasonable private use. The activities authorized by this NWP will help landowners protect their property from erosion. The NWP provides expedited DA authorization for discharges of dredged or fill material for bank stabilization activities, provided the activity complies with the terms and conditions of the NWP and results in minimal adverse effects on the aquatic environment.

5.2 Additional Public Interest Review Factors (33 CFR 320.4(a)(2))

5.2.1 Relative extent of the public and private need for the proposed structure or work

This NWP authorizes bank stabilization activities that have minimal individual and cumulative adverse effects on the aquatic environment. These activities satisfy public and private needs for property protection and safety. The need for this NWP is based upon the number of these activities that occur annually with minimal individual and cumulative adverse effects on the aquatic environment.

5.2.2 Where there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work

Most situations in which there are unresolved conflicts concerning resource use arise when environmentally sensitive areas are involved (e.g., special aquatic sites, including wetlands) or where there are competing uses of a resource. The nature and scope of the activity, when planned and constructed in accordance with the terms and conditions of this NWP, reduce the likelihood of such conflict. In the event that there is a conflict, the NWP contains provisions that are capable of resolving the matter (see Section 1.2 of this document).

General condition 23 requires permittees to avoid and minimize adverse effects to waters of the United States to the maximum extent practicable on the project site. Consideration of off-site alternative locations is not required for activities that are authorized by general permits. General permits authorize activities that have minimal individual and cumulative adverse effects on the aquatic environment and overall public interest. District engineers will exercise discretionary authority and require an individual permit if the proposed activity will result in more than minimal adverse environmental effects on the project site. The consideration of off-site alternatives can be required during the individual permit process.

5.2.3 The extent and permanence of the beneficial and/or detrimental effects which the proposed structure or work is likely to have on the public and private uses to which the area is suited

The nature and scope of the activities authorized by the NWP will most likely restrict the extent of the beneficial and detrimental effects to the area immediately surrounding the bank stabilization activity. Activities authorized by this NWP will have minimal individual and cumulative adverse effects on the aquatic environment.

The terms, conditions, and provisions of the NWP were developed to ensure that individual and cumulative adverse environmental effects are minimal. Specifically, NWPs do not obviate the need for the permittee to obtain other Federal, state, or local authorizations required by law. The NWPs do not grant any property rights or exclusive privileges (see 33 CFR 330.4(b) for further information). Additional conditions, limitations, restrictions, and provisions for discretionary authority, as well as the ability to add activity-specific or regional conditions to this NWP, will provide further safeguards to the aquatic environment and the overall public interest. There are also provisions to allow suspension, modification, or revocation of the NWP.

6.0 Clean Water Act Section 404(b)(1) Guidelines Analysis

The 404(b)(1) compliance criteria for general permits are provided at 40 CFR 230.7.

6.1 Evaluation Process (40 CFR 230.7(b))

6.1.1 Alternatives (40 CFR 230.10(a))

General condition 23 requires permittees to avoid and minimize discharges of dredged or fill material into waters of the United States to the maximum extent practicable on the project site. The consideration of off-site alternatives is not directly applicable to general permits.

6.1.2 Prohibitions (40 CFR 230.10(b))

This NWP authorizes discharges of dredged or fill material into waters of the United States,

which require water quality certification. Water quality certification requirements will be met in accordance with the procedures at 33 CFR 330.4(c).

No toxic discharges will be authorized by this NWP. General condition 6 states that the material must be free from toxic pollutants in toxic amounts.

This NWP does not authorize activities that jeopardize the continued existence of any listed threatened or endangered species or result in the destruction or adverse modification of critical habitat. Reviews of pre-construction notifications, regional conditions, and local operating procedures for endangered species will ensure compliance with the Endangered Species Act. Refer to general condition 18 and to 33 CFR 330.4(f) for information and procedures.

This NWP will not authorize the violation of any requirement to protect any marine sanctuary. Refer to section 6.2.3(j)(1) of this document for further information.

6.1.3 Findings of Significant Degradation (40 CFR 230.10(c))

Potential impact analysis (Subparts C through F): The potential impact analysis specified in Subparts C through F is discussed in section 6.2.3 of this document. Mitigation required by the district engineer will ensure that the adverse effects on the aquatic environment are minimal.

Evaluation and testing (Subpart G): Because the terms and conditions of the NWP specify the types of discharges that are authorized, as well as those that are prohibited, individual evaluation and testing for the presence of contaminants will normally not be required. If a situation warrants, provisions of the NWP allow division or district engineers to further specify authorized or prohibited discharges and/or require testing.

Based upon Subparts B and G, after consideration of Subparts C through F, the discharges authorized by this NWP will not cause or contribute to significant degradation of waters of the United States.

6.1.4 Factual determinations (40 CFR 230.11)

The factual determinations required in 40 CFR 230.11 are discussed in section 6.2.3 of this document.

6.1.5 Appropriate and practicable steps to minimize potential adverse impacts (40 CFR 230.10(d))

As demonstrated by the information in this document, as well as the terms, conditions, and provisions of this NWP, actions to minimize adverse effects (Subpart H) have been thoroughly considered and incorporated into the NWP. General condition 23 requires permittees to avoid and minimize discharges of dredged or fill material into waters of the

United States to the maximum extent practicable on the project site. Compensatory mitigation may be required by the district engineer to ensure that the net adverse effects on the aquatic environment are minimal.

6.2 Evaluation Process (40 CFR 230.7(b))

6.2.1 Description of permitted activities (40 CFR 230.7(b)(2))

As indicated by the text of this NWP in section 1.0 of this document, and the discussion of potential impacts in section 4.0, the activities authorized by this NWP are sufficiently similar in nature and environmental impact to warrant authorization under a single general permit. Specifically, the purpose of the NWP is to authorize discharges of dredged or fill material for bank stabilization activities. The nature and scope of the impacts are controlled by the terms and conditions of the NWP.

The activities authorized by this NWP are sufficiently similar in nature and environmental impact to warrant authorization by a general permit. The terms of the NWP authorize a specific category of activity (i.e., discharges of dredged or fill material for bank stabilization activities) in a specific category of waters (i.e., waters of the United States). The restrictions imposed by the terms and conditions of this NWP will result in the authorization of activities that have similar impacts on the aquatic environment, namely the replacement of aquatic habitats, such as open waters, with structures or fills designed to reduce erosion.

If a situation arises in which the activity requires further review, or is more appropriately reviewed under the individual permit process, provisions of the NWPs allow division and/or district engineers to take such action.

6.2.2 Cumulative effects (40 CFR 230.7(b)(3))

The 404(b)(1) Guidelines at 40 CFR 230.11(a) define cumulative effects as "...the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material." For the issuance of general permits, such as this NWP, the 404(b)(1) Guidelines require the permitting authority to "set forth in writing an evaluation of the potential individual and cumulative impacts of the categories of activities to be regulated under the general permit." [40 CFR 230.7(b)] If a situation arises in which cumulative effects are likely to be more than minimal and the proposed activity requires further review, or is more appropriately reviewed under the individual permit process, provisions of the NWPs allow division and/or district engineers to take such action.

Based on reported use of this NWP during the period of August 1, 2009, to July 31, 2010, the Corps estimates that this NWP will be used approximately 3,500 times per year on a national basis, resulting in impacts to approximately 55 acres of waters of the United States, including jurisdictional wetlands. The Corps estimates that approximately 120 acres of compensatory mitigation will be required to offset these impacts. The demand for these types of activities could increase or decrease over the five-year duration of this NWP. Using

the current trend, approximately 17,500 activities could be authorized over a five year period until this NWP expires, resulting in impacts to approximately 275 acres of waters of the United States, including jurisdictional wetlands. Approximately 600 acres of compensatory mitigation would be required to offset those impacts. Compensatory mitigation is the restoration (re-establishment or rehabilitation), establishment, enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved. [33 CFR 332.2]

Wetland restoration, enhancement, and establishment projects can provide wetland functions, as long as the wetland compensatory mitigation project is placed in an appropriate landscape position, has appropriate hydrology for the desired wetland type, and the watershed condition will support the desired wetland type (NRC 2001). The success of wetland restoration, enhancement, and establishment is dependent on the technical expertise of the mitigation provider, allowing sufficient time for wetland structure and functions to develop, and recognizing the ability for ecosystems to undergo self-design during their development (Mitsch and Gosselink 2007). Most studies of compensatory mitigation success have focused solely on the ecological attributes of the compensatory mitigation projects, and few studies have also evaluated the aquatic resources impacted by permitted activities (Kettlewell et al. 2008), so it is difficult to assess whether compensatory mitigation has fully or partially offset the lost functions provided by the aquatic resources that are impacted by permitted activities. In its review, the NRC (2001) concluded that some wetland types can be successfully restored or established (e.g., non-tidal emergent wetlands, some forested and scrub-shrub wetlands, sea grasses, and coastal marshes), while other wetland types (e.g., vernal pools, bogs, and fens) are difficult to restore and should be avoided where possible. Because of its greater potential to successfully provide wetland functions, restoration is the preferred compensatory mitigation mechanism (33 CFR 332.3(a)(2)). Bogs, fens, and springs are considered to be difficult-to-replace resources and compensatory mitigation should be provided through in-kind rehabilitation, enhancement, or preservation of these wetlands types (33 CFR 332.3(e)(3)).

In its review of outcomes of wetland compensatory mitigation activities, the NRC (2001) stated that wetland functions can be replaced by wetland restoration and establishment activities. They discussed five categories of wetland functions: hydrology, water quality, maintenance of plant communities, maintenance of animal communities, and soil functions. Wetland functions develop at different rates in wetland restoration and establishment projects (NRC 2001). It is difficult to restore or establish natural wetland hydrology, and water quality functions are likely to be different than the functions provided at wetland impact sites (NRC 2001). Reestablishing or establishing the desired plant community may be difficult because of invasive species colonizing the mitigation project site (NRC 2001). The committee also found that establishing and maintaining animal communities depends on the surrounding landscape. Soil functions can take a substantial amount of time to develop, because they are dependent on soil organic matter and other soil properties (NRC 2001). The NRC (2001) concluded that the success of replacing wetland functions depends on the particular function of interest, the restoration or establishment techniques used, and the

extent of degradation of the compensatory mitigation project site and its watershed.

The ecological success of wetland restoration and enhancement activities is affected by the amount of changes to hydrology and inputs of pollutants, nutrients, and sediments within the watershed or contributing drainage area (Wright et al. 2006). Wetland restoration is becoming more successful, especially in cases where monitoring and adaptive management are used to correct deficiencies in these efforts (Zedler and Kercher 2005). Irreversible changes to landscapes, especially those that affect hydrology within contributing drainage areas or watersheds , cause wetland degradation and impede the success of wetland restoration efforts (Zedler and Kercher 2005).

Streams are difficult-to-replace resources and compensatory mitigation should be provided through stream rehabilitation, enhancement, and preservation since those techniques are most likely to be successful (see 33 CFR 332.3(e)(3)). Stream rehabilitation is usually the most effective compensatory mitigation mechanism since restoring a stream to a historic state is not possible because of changes in land use and other activities in a watershed (Roni et al. 2008). Stream rehabilitation and enhancement projects, including the restoration and preservation of riparian areas, provide riverine functions (e.g., Allan and Castillo (2007) for rivers and streams, NRC (2002) for riparian areas). Non-structural and structural techniques can be used to rehabilitate and enhance streams, and restore riparian areas (NRC 1992). Non-structural practices include removing disturbances to allow passive recovery of streams and riparian areas, reducing or eliminating activities that have altered stream flows to restore natural flows, preserving or restoring floodplains, and restoring and protecting riparian areas, including fencing those areas to exclude livestock and people (NRC 1992). Structural rehabilitation and enhancement techniques include channel, bank, and/or riparian area modifications to improve habitat and dam removal (NRC 1992). Road improvements, riparian rehabilitation, reconnecting floodplains to their rivers, and installing in-stream habitat structures have had varying degrees of success in stream rehabilitation activities (Roni et al. 2008). Success of these rehabilitation activities is strongly dependent on addressing impaired water quality and insufficient water quantity, since those factors usually limit the biological response to stream rehabilitation efforts (Roni et al. 2008). Ecologically successful stream rehabilitation and enhancement activities depend on addressing the factors that most strongly affect stream functions, especially water quality, water flow, and riparian quality, and not focusing solely on rehabilitating or enhancing the physical habitat of streams (Palmer et al. 2010).

The compensatory mitigation required by district engineers in accordance with general condition 23 and activity-specific conditions will provide aquatic resource functions and services to offset some or all of the losses of aquatic resource functions caused by the activities authorized by this NWP, and reduce the contribution of those activities to the cumulative effects on the Nation's wetlands, streams, and other aquatic resources. The required compensatory mitigation must be conducted in accordance with the applicable provisions of 33 CFR part 332, which requires development and implementation of approved mitigation plans, as well as monitoring to assess success in accordance with ecological performance standards established for the compensatory mitigation project. The

district engineer will evaluate monitoring reports to determine if the compensatory mitigation project has fulfilled its objectives and is ecological successful. [33 CFR 332.6] If the monitoring efforts indicate that the compensatory mitigation project is failing to meet its objectives, the district engineer may require additional measures, such as adaptive management or alternative compensatory mitigation, to address the compensatory mitigation project's deficiencies. [33 CFR 332.7(c)]

According to Dahl (2011), during the period of 2004 to 2009 approximately 489,620 acres of former upland were converted to wetlands as a result of wetland reestablishment and establishment activities. Efforts to reestablish or establish wetlands have been successful in increasing wetland acreage in the United States.

The individual and cumulative adverse effects on the aquatic environment resulting from the activities authorized by this NWP will be minimal. The Corps expects that the convenience and time savings associated with the use of this NWP will encourage applicants to design their projects within the scope of the NWP, including its limits, rather than request individual permits for projects that could result in greater adverse impacts to the aquatic environment. Division and district engineers will restrict or prohibit this NWP on a regional or case-specific basis if they determine that these activities will result in more than minimal individual and cumulative adverse effects on the aquatic environment.

6.2.3 Section 404(b)(1) Guidelines Impact Analysis, Subparts C through F

(a) Substrate: Discharges of dredged or fill material into waters of the United States will alter the substrate of those waters, usually replacing the aquatic area with dry land, and changing the physical, chemical, and biological characteristics of the substrate. The original substrate will be removed or covered by other material, such as concrete, asphalt, soil, gravel, etc. Temporary fills may be placed upon the substrate, but must be removed upon completion of the activity (see general condition 13). Higher rates of erosion may result during construction, but general condition 12 requires the use of appropriate measures to control soil erosion and sediment.

(b) Suspended particulates/turbidity: Depending on the method of construction, soil erosion and sediment control measures, equipment, composition of the bottom substrate, and wind and current conditions during construction, fill material placed in open waters will temporarily increase water turbidity. Pre-construction notification is required for certain activities authorized by this NWP, such as discharges of dredged or fill material into jurisdictional special aquatic sites, which will allow the district engineer to review such activities and ensure that adverse effects on the aquatic environment are minimal. Particulates will be resuspended in the water column during removal of temporary fills. The turbidity plume will normally be limited to the immediate vicinity of the disturbance and should dissipate shortly after each phase of the construction activity. General condition 12 requires the permittee to stabilize exposed soils and other fills, which will reduce turbidity. NWP activities cannot create turbidity plumes that smother important spawning areas downstream (see general condition 3).

(c) Water: Bank stabilization activities may affect some characteristics of water, such as water clarity, chemical content, dissolved gas concentrations, pH, and temperature. These activities can change the chemical and physical characteristics of the waterbody by introducing suspended or dissolved chemical compounds into the water. Changes in water quality can affect the species and quantities of organisms inhabiting the aquatic area. Water quality certification is required for activities authorized by this NWP, which will ensure that the activities do not violate applicable water quality standards.

(d) Current patterns and water circulation: Activities authorized by this NWP may adversely affect the movement of water in the aquatic environment. Certain bank stabilization activities authorized by this NWP require pre-construction notification to the district engineer. These activities will be reviewed on a case-by-case basis to ensure that the adverse effects on the aquatic environment are minimal. General condition 9 requires the authorized activity to be designed to withstand expected high flows and to maintain the course, condition, capacity, and location of open waters to the maximum extent practicable. General condition 10 requires activities to comply with applicable FEMA-approved state or local floodplain management requirements, which will reduce adverse effects to surface water flows.

(e) Normal water level fluctuations: The activities authorized by this NWP will not adversely affect normal patterns of water level fluctuations due to tides and flooding. This NWP does not authorize activities in tidal waters. To ensure that the NWP does not authorize activities that adversely affect normal flooding patterns, general condition 9 requires the permittee to maintain the pre-construction course, condition, capacity, and location of open waters, to the maximum extent practicable.

(f) Salinity gradients: The activities authorized by this NWP are unlikely to adversely affect salinity gradients, since it authorizes bank stabilization activities. Bank stabilization activities typically do not change water flow patterns that could modify salinity gradients.

(g) Threatened and endangered species: The Corps believes that the procedures currently in place result in proper coordination under Section 7 of the Endangered Species Act (ESA) and ensure that activities authorized by this NWP will not jeopardize the continued existence or any listed threatened and endangered species or result in the destruction or adverse modification of critical habitat. The Corps also believes that current local procedures in Corps districts are effective in ensuring compliance with ESA.

Under general condition 18, no activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

Each activity authorized by an NWP is subject to general condition 18, which states that "[n]o activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species

proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species." In addition, general condition 18 explicitly states that the NWP does not authorize the taking of threatened or endangered species, which will ensure that permittees do not mistake the NWP authorization as a Federal authorization to take threatened or endangered species. General condition 18 also requires a non-federal permittee to submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat. This general condition also states that, in such cases, non-federal permittees shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized.

Under the current Corps regulations (33 CFR 325.2(b)(5)), the district engineer must review all permit applications for potential impacts on threatened and endangered species or critical habitat. For the NWP program, this review occurs when the district engineer evaluates the pre-construction notification or request for verification. Based on the evaluation of all available information, the district engineer will initiate consultation with the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS), as appropriate, if he or she determines that the proposed activity may affect any threatened and endangered species or critical habitat. Consultation may occur during the NWP authorization process or the district engineer may exercise discretionary authority to require an individual permit for the proposed activity and initiate consultation through the individual permit process. If ESA consultation is conducted during the NWP authorization process without the district engineer exercising discretionary authority, then the applicant will be notified that he or she cannot proceed with the proposed activity until ESA consultation is complete. If the district engineer determines that the activity will have no effect on any threatened and endangered species or critical habitat, then the district engineer will notify the applicant that he or she may proceed under the NWP authorization.

Corps districts have, in most cases, established informal or formal procedures with local offices of the USFWS and NMFS, through which the agencies share information regarding threatened and endangered species and their critical habitat. This information helps district engineers determine if a proposed activity may affect listed species or their critical habitat and, if necessary, initiate ESA consultation. Corps districts may utilize maps or databases that identify locations of populations of threatened and endangered species and their critical habitat. Where necessary, regional conditions are added to NWPs to require pre-construction notification for NWP activities that occur in known locations of threatened and endangered species or critical habitat. For activities that require agency coordination during the pre-construction notification process, the USFWS and NMFS will review the proposed activities for potential impacts to threatened and endangered species and their critical habitat. Any information provided by local maps and databases and any comments received during the pre-construction notification review process will be used by the district engineer to make a "no effect" or "may affect" decision.

Based on the safeguards discussed above, especially general condition 18 and the NWP

regulations at 33 CFR 330.4(f), the Corps has determined that the activities authorized by this NWP will not jeopardize the continued existence of any listed threatened or endangered species or result in the destruction or adverse modification of designated critical habitat. Although the Corps continues to believe that these procedures ensure compliance with the ESA, the Corps has taken some steps to provide further assurance. Corps district offices meet with local representatives of the USFWS and NMFS to establish or modify existing procedures, where necessary, to ensure that the Corps has the latest information regarding the existence and location of any threatened or endangered species or their critical habitat. Corps districts can also establish, through local procedures or other means, additional safeguards that ensure compliance with the ESA. Through formal consultation under Section 7 of the Endangered Species Act, or through other coordination with the USFWS and/or the NMFS, as appropriate, the Corps will establish procedures to ensure that the NWP will not jeopardize any threatened and endangered species or result in the destruction or adverse modification of designated critical habitat. Such procedures may result in the development of regional conditions added to the NWP by the division engineer, or in special conditions to be added to an NWP authorization by the district engineer.

(h) Fish, crustaceans, molluscs, and other aquatic organisms in the food web. Fish and other motile animals will avoid the project site during construction. Sessile or slow-moving animals in the path of discharges, equipment, and building materials will be destroyed. Some aquatic animals may be smothered by the placement of fill material. Motile animals will return to those areas that are temporarily impacted by the activity and restored or allowed to revert back to preconstruction conditions. Aquatic animals will not return to sites of permanent fills. Benthic and sessile animals are expected to recolonize sites temporarily impacted by the activity, after those areas are restored. Activities that alter the riparian zone, may adversely affect populations of fish and other aquatic animals, by altering stream flow, flooding patterns, and surface and groundwater hydrology. Some species of fish spawn on floodplains, which could be prevented if the activity involves clearing or filling the floodplain. Bank stabilization activities in the vicinity of streams may alter habitat features by increasing surface water flow velocities, which can increase erosion and reduce the amount of habitat for aquatic organisms and destroy spawning areas. Bank stabilization activities in the vicinity of streams can also cause more unstable flow regimes, such as higher peak flows, more frequent dry periods, and more frequent flooding, which may decrease the amount of habitat for aquatic animals.

Division and district engineers can place conditions on this NWP to prohibit discharges during important stages of the life cycles of certain aquatic organisms. Such time of year restrictions can prevent adverse effects to these aquatic organisms during reproduction and development periods. General conditions 3 and 5 address protection of spawning areas and shellfish beds, respectively. General condition 3 states that activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. In addition, general condition 3 also prohibits activities that result in the physical destruction of important spawning areas. General condition 5 prohibits activities in areas of concentrated

shellfish populations. General condition 9 requires the maintenance of pre-construction course, condition, capacity, and location of open waters to the maximum extent practicable, which will help minimize adverse impacts to fish, shellfish, and other aquatic organisms in the food web.

(i) Other wildlife: Activities authorized by this NWP will result in adverse effects on other wildlife associated with aquatic ecosystems, such as resident and transient mammals, birds, reptiles, and amphibians, through the destruction of aquatic habitat, including breeding and nesting areas, escape cover, travel corridors, and preferred food sources. This NWP does not authorize activities that jeopardize the continued existence of Federally-listed endangered and threatened species or result in the destruction or adverse modification of critical habitat. Compensatory mitigation, including the establishment and maintenance of riparian areas next to open waters, may be required for activities authorized by this NWP, which will help offset losses of aquatic habitat for wildlife. General condition 4 states that activities in breeding areas for migratory birds must be avoided to the maximum extent practicable.

(j) Special aquatic sites: The potential impacts to specific special aquatic sites are discussed below:

(1) Sanctuaries and refuges: The activities authorized by this NWP will have minimal adverse effects on waters of the United States within sanctuaries or refuges designated by Federal or state laws or local ordinances. General condition 22 requires submittal of a pre-construction notification prior to the use of this NWP in NOAA-designated marine sanctuaries and marine monuments and National Estuarine Research Reserves. District engineers will exercise discretionary authority and require individual permits for specific projects in waters of the United States in sanctuaries and refuges if those activities will result in more than minimal adverse effects on the aquatic environment.

(2) Wetlands: The activities authorized by this NWP will have minimal adverse effects on wetlands. District engineers will review pre-construction notifications for proposed discharges of dredged or fill material into jurisdictional wetlands to ensure that the adverse effects on the aquatic environment are minimal. Division engineers can regionally condition this NWP to restrict or prohibit its use in certain high value wetlands. If the wetland is high value and the proposed activity will result in more than minimal adverse effects on the aquatic environment, the district engineer will exercise discretionary authority to require the project proponent to obtain an individual permit. See paragraph (e) of section 5.1 for a more detailed discussion of impacts to wetlands.

(3) Mud flats: The activities authorized by this NWP will have minimal adverse effects on mud flats. District engineers will review pre-construction notifications for proposed discharges of dredged or fill material into jurisdictional mud flats to ensure that the adverse effects on the aquatic environment are minimal. Division engineers can regionally condition this NWP to restrict or prohibit its use in specific high value mud flats. If the mud flat is high value and the proposed activity will result in more than minimal adverse effects on the aquatic environment, the district engineer will exercise discretionary authority to

require the project proponent to obtain an individual permit.

(4) Vegetated shallows: The activities authorized by this NWP will have minimal adverse effects on vegetated shallows. District engineers will review pre-construction notifications for proposed discharges of dredged or fill material into jurisdictional vegetated shallows to ensure that the adverse effects on the aquatic environment are minimal. Division engineers can regionally condition this NWP to restrict or prohibit its use in specific high value vegetated shallows. If the vegetated shallows are high value and the proposed activity will result in more than minimal adverse effects on the aquatic environment, the district engineer will exercise discretionary authority to require the project proponent to obtain an individual permit.

(5) Coral reefs: The activities authorized by this NWP will have minimal adverse effects on coral reefs. District engineers will review pre-construction notifications for proposed discharges of dredged or fill material into these special aquatic sites to ensure that the adverse effects on the aquatic environment are minimal. Division engineers can regionally condition this NWP to restrict or prohibit its use in specific high value coral reefs. If the coral reef is high value and the proposed activity will result in more than minimal adverse effects on the aquatic environment, the district engineer will exercise discretionary authority to require the project proponent to obtain an individual permit.

(6) Riffle and pool complexes: The activities authorized by this NWP will have minimal adverse effects on riffle and pool complexes. District engineers will review pre-construction notifications for proposed discharges of dredged or fill material into jurisdictional riffle and pool complexes to ensure that the adverse effects on the aquatic environment are minimal. Division engineers can regionally condition this NWP to restrict or prohibit its use in specific high value riffle and pool complexes. If the riffle and pool complexes are high value and the proposed activity will result in more than minimal adverse effects on the aquatic environment, the district engineer will exercise discretionary authority to require the project proponent to obtain an individual permit.

(k) Municipal and private water supplies: See paragraph (n) of section 5.1 for a discussion of potential impacts to water supplies.

(l) Recreational and commercial fisheries, including essential fish habitat: The activities authorized by this NWP may adversely affect waters of the United States that act as habitat for populations of economically important fish and shellfish species. Division and district engineers can condition this NWP to prohibit discharges during important life cycle stages, such as spawning or development periods, of economically valuable fish and shellfish. Certain activities authorized by this NWP require pre-construction notification to the district engineer, which will allow review of those activities to ensure that adverse effects to economically important fish and shellfish are minimal. Compliance with general conditions 3 and 5 will ensure that the authorized activity does not adversely affect important spawning areas or concentrated shellfish populations. As discussed in paragraph (g) of section 5.1, there are procedures to help ensure that impacts to essential fish habitat are minimal,

individually or cumulatively. For example, division and district engineers can impose regional and special conditions to ensure that activities authorized by this NWP will result in minimal adverse effects on essential fish habitat.

(m) Water-related recreation: See paragraph (m) of section 5.1 above.

(n) Aesthetics: See paragraph (c) of section 5.1 above.

(o) Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar areas: General condition 22 requires submittal of a pre-construction notification prior to the use of this NWP in designated critical resource waters and adjacent wetlands, which may be located in parks, national and historical monuments, national seashores, wilderness areas, and research sites. This NWP can be used to authorize activities in parks, national and historical monuments, national seashores, wilderness areas, and research sites if the manager or caretaker wants to conduct activities in waters of the United States and those activities result in minimal adverse effects on the aquatic environment. Division engineers can regionally condition the NWP to prohibit its use in designated areas, such as national wildlife refuges or wilderness areas.

7.0 Determinations

7.1 Finding of No Significant Impact

Based on the information in this document, the Corps has determined that the issuance of this NWP will not have a significant impact on the quality of the human environment. Therefore, the preparation of an Environmental Impact Statement is not required.

7.2 Public Interest Determination

In accordance with the requirements of 33 CFR 320.4, the Corps has determined, based on the information in this document, that the issuance of this NWP is not contrary to the public interest.

7.3 Section 404(b)(1) Guidelines Compliance

This NWP has been evaluated for compliance with the 404(b)(1) Guidelines, including Subparts C through G. Based on the information in this document, the Corps has determined that the discharges authorized by this NWP comply with the 404(b)(1) Guidelines, with the inclusion of appropriate and practicable conditions, including mitigation, necessary to minimize adverse effects on affected aquatic ecosystems. The activities authorized by this NWP will result in minimal individual and cumulative adverse effects on the aquatic environment.

7.4 Section 176(c) of the Clean Air Act General Conformity Rule Review

This NWP has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities authorized by this permit will not exceed de minimis levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR 93.153. Any later indirect emissions are generally not within the Corps continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons, a conformity determination is not required for this NWP.

FOR THE COMMANDER

Dated:

13 FEB 2012

Michael J. Walsh
Major General, US Army
Deputy Commanding General
for Civil and Emergency Operations

8.0 Literature Cited

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Iowa WQC NWP

Fields of Opportunities

STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
ROGER L. LANDE, DIRECTOR

April 18, 2012

Mr. John Moeschen
U.S. Army Corps of Engineers
Wehrspann Regulatory Field Office
8901 South 154th Street, Suite 1
Omaha, NE 68138-3635

Subject: Section 401 Water Quality Certification for the 2012 Nationwide Permits

Dear Mr. Moeschen,

The Environmental Protection Commission granted Section 401 Water Quality Certification for the 2012 Nationwide Permits on April 17, 2012. An administrative rule reflecting the Commission's actions was adopted and has an effective date of June 20, 2012.

The Iowa Department of Natural Resources is issuing Section 401 Water Quality Certification for the 2012 Nationwide Permits with the following conditions:

(1) Side slopes of a newly constructed channel will be no steeper than 2:1 and planted to permanent, perennial, native vegetation if not armored.

(2) Nationwide permits with mitigation may require recording of the nationwide permit and pertinent drawings with the registrar of deeds or other appropriate official charged with the responsibility for maintaining records of title to, or interest in, real property and may also require the permittee to provide proof of that recording to the Corps.

(3) Mitigation shall be scheduled prior to, or concurrent with, the discharge of dredged or fill material into waters of the United States.

(4) For newly constructed channels through areas that are unvegetated, native grass filter strips, or a riparian buffer with native trees or shrubs a minimum of 35 feet wide from the top of bank must be planted along both sides of the new channel. A survival rate of 80 percent of desirable species shall be achieved within three years of establishment of the buffer strip.

(5) For single-family residences authorized under nationwide permit 29, the permanent loss of waters of the United States (including jurisdictional wetlands) must not exceed 1/4 acre.

(6) For nationwide 46, the discharge of dredged or fill material into ditches that would sever the jurisdiction of an upstream water of the United States from a downstream water of the United States is not allowed.

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515-281-5918 FAX 515-281-6794 www.iowadnr.gov

(7) For projects that impact an outstanding national resource water, outstanding Iowa water, fens, bogs, seeps, or sedge meadows, an individual Section 401 Water Quality Certification will be required.

(8) For nationwide permits when the Corps' district engineer has issued a waiver to allow the permittee to exceed the limits of the nationwide permit, an individual Section 401 Water Quality Certification will be required.

(9) Heavy equipment shall not be used or operated within the stream channel. If in-stream work is unavoidable, it shall be performed in such a manner as to minimize the duration of the disturbance, turbidity increases, substrate disturbance, bank disturbance, and riparian vegetation. This condition does not further restrict otherwise authorized drainage ditch maintenance activities.

For any project that impacts the Missouri River on the Iowa side, the Iowa Department of Natural Resources requests that the Corps of Engineers contact us for project-specific comments/conditions to protect the water quality/aquatic resources of the site prior to finalizing the permit decision. The request for comments may be sent to christine.schwake@dnr.iowa.gov .

Best management practices must be used to prevent and control spills of hazardous substances and if there is a release, it must be immediately reported to the Iowa Department of Natural Resources at 515-281-8694.

We would like to ask the Corps to encourage applicants to use natural channel design principles and bioengineering techniques when the project involves reconstructing stream channels. This will help restore or enhance the habitat values of the reconstructed stream channel.

If you have any questions or comments regarding this Section 401 Water Quality Certification, please contact me at the address shown below or call (515) 281-6615.

Sincerely,

Christine M. Schwake

Christine M. Schwake
Environmental Specialist

APPENDIX B
Agency Coordination

From: Ledwin, Jane
To: Bozarth, Rebecca L NWO
Subject: [EXTERNAL] Re: FW: PL 84-99 Levee Repair- Mosquito Creek, Council Bluffs Iowa (UNCLASSIFIED)
Date: Wednesday, October 22, 2014 10:22:58 AM

Hi Rebecca:

Thanks for the materials on the proposed work. Based on that information, the Service concurs with your determination of no effect for any federally listed species. We have no further recommendations for fish and wildlife. Thanks for the coordination.

Jane

On Oct 22, 2014 9:52 AM, "Bozarth, Rebecca L NWO" [redacted] wrote:

> Classification: UNCLASSIFIED
> Caveats: NONE
>
> Ms. Ledwin,
>
> In order to fulfill the requirements of the Fish and Wildlife Coordination Act, ESA and the MBTA and BGEPA do you concur with my assumptions below? Do you have further input? Please advise.
>
> Respectfully,
> Rebecca Bozarth
>
> -----Original Message-----
> From: Bozarth, Rebecca L NWO
> Sent: Friday, October 03, 2014 12:33 PM
> To: [redacted]'; Barnum, Sandra V NWO; Wray, Matt T NWO; [redacted] Gorman, Thomas G NWO; [redacted]'
> Cc: Horihan, Christopher J NWO; Vandenberg, Matthew D NWO
> Subject: PL 84-99 Levee Repair- Mosquito Creek, Council Bluffs Iowa (UNCLASSIFIED)
>
> Classification: UNCLASSIFIED
> Caveats: NONE
>
> All,
>
> The Corps is proposing to repair two destabilized portions of the bankline of the L-624-627 System, Mosquito Creek in Council Bluffs Iowa (see attached L624-627 jpg). Of the nine reported areas of damage, two are eligible for assistance, Station C5+00 (see attached IMG 1864 jpg) and C65+00-C67+00 (see attached IMG 1907 jpg). These areas were compromised as a result of high flows in June 2014, the proposed alternative would excavate sloughed material, re-establish the bankline with compacted cohesive fill and place riprap to protect against future sloughing and erosion.
>
> This work would be done under the authority of Public Law 84-99 Emergency Levee Rehabilitation Program. Rehabilitative measures would be conducted during the winter season of FY15. Some clearing and grubbing work is expected to take place to reshape the bankline to the original design with a 1V:3H riverside slope.

If you require additional information in regards to proposed repairs, please do not hesitate to contact me.

Thank you.

Ms. Ledwin, Mr. Hildreth and Mr. Chaffa- In compliance with the Fish and Wildlife Coordination Act, the Endangered Species Act and the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act, the Corps has determined:

1) Endangered pallid sturgeon (Scaphirhynchus albus)- No Affect- Not found in the proposed project area as it inhabits large, turbid rivers.

2) Endangered interior least tern (Sterna anthillarum) and threatened piping plover (Charadrius melodus) - No Affect- Not found in Mosquito Creek, additionally during time of proposed construction, no interior least terns or piping plovers are within the area

3) Threatened western prairie fringed orchid (Platanthera praeclara) and threatened prairie bush clover (Lespedeza leptostachya)- No Affect- Proposed project in urbanized area, no prairie fringed orchid or prairie bush clover are expected to be located in the area

4) Proposed endangered northern long-eared bat (Myotis septentrionalis)- No Affect- Hibernates in caves and mines, roosts and forages in upland forests

5) Candidate eastern massasuga (Sistrurus catenatus)- Not Likely to Adversely Affect- Proposed project area located in urbanized location, eastern massasuga inhabit wet areas, marshes and areas along rivers and lakes, may hibernate in crayfish burrows

No trees are being proposed for removal, however if any trees are required to be cleared , prior to construction a qualified biologist will conduct a migratory bird and raptor survey to clear the area and ensure no nests are present in the area.

Ms. Ledwin, while no concurrence is required for a No Affect determination, the Corps is requesting an acknowledgement of this email to ensure coordination.

Ms. Barnum- Please review and ensure no cultural resources presently on or proposed for listing on the National Historic Register are present at this site.

Mr. Wray- During construction and re-shaping of the banks, as well as the placement of rock riprap along the two proposed damaged sites of the levee, the Corps proposes to use Nationwide Permit 3, Maintenance to authorize both temporary and permanent fills for this project. Please inform this office if you concur with this assessment.

Mr. Gorman- The proposed project is located within the floodplain but it is believed it would not cause any significant rise to floodwaters. Could you supply this office if you concur with this assessment?

Thank you,

Rebecca Bozarth

Environmental Resource Specialist

402-995-2677

CENWO-PM-AC

1616 Capital Avenue

Omaha, NE 68102

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

From: Barnum, Sandra V NWO
To: Bozarth, Rebecca L NWO
Subject: RE: PL 84-99 Levee Repair- Mosquito Creek, Council Bluffs Iowa (UNCLASSIFIED)
Date: Thursday, October 23, 2014 7:02:12 AM

Classification: UNCLASSIFIED
Caveats: NONE

Becca,
I have reviewed the information provided for the proposed levee repair on Mosquito Creek at council Bluffs, Iowa. A cultural resource files search in the Office of the State Archaeologist's database revealed no recorded sites within the Area of Potential Effect (APE) for the repairs. As the work will take place in a previously disturbed area, with no original stratigraphy, I believe that the project as described will have No Potential to Affect Historic Properties. Recommend project approval.

Should the scope of this work change in any way, please contact this office for further review.

Thanks,
Sandy

Sandra V. Barnum, RPA
District Archeologist
U.S. Army Corps of Engineers
CENWO-PM-AB
1616 Capitol Avenue
Omaha, NE 68102
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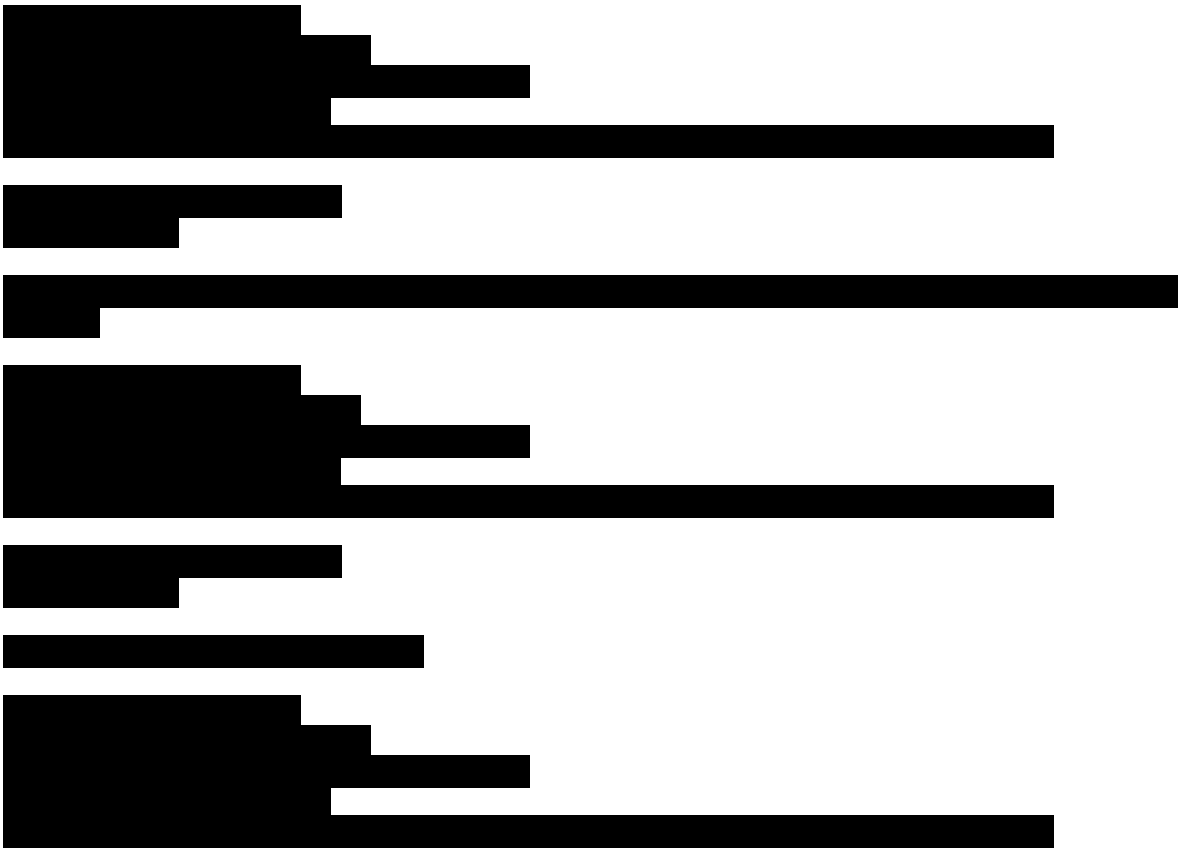

Classification: UNCLASSIFIED