

**US Army Corps
Of Engineers**
Fort Worth District

**PL 84-99 PROJECT INFORMATION REPORT
AND
INTEGRATED ENVIRONMENTAL ASSESSMENT**

**ELLIS COUNTY LEVEE IMPROVEMENT DISTRICT
No. 3
Ferris, Texas**

August 2007

Table of Contents

	<u>Description</u>	<u>Page</u>
Part 1	Executive Summary	1
Part II	Basic Report	2
1.	Project Identification.....	2
2.	Project Authority	2
3.	Public Sponsors	2
4.	Project Location	2
5.	Project Design	5
6.	Disaster Incident	5
7.	Project Damages	5
8.	Project Performance Data.....	6
9.	Project Repair Alternatives Considered	6
10.	Recommended Alternative.....	6
11.	Real Estate.....	6
12.	Economics	7
13.	Environmental Conditions and Effects.....	7
14.	Public Agency and Interest Review.....	11
15.	Project Management.....	11

List of Figures

1.	Damages to Ellis Co. LID #3.....	3
2.	Levee Breach Location	4

List of Tables

1.	Damage Locations	5
2.	Cost Estimate	12
3.	Schedule.....	13

List of Appendices

- A. Project Sponsor's Request for Rehabilitation Assistance
- B. Project Location and Design Data, Maps and Related Information
- C. Disaster Incident
- D. Damages
- E. Repair Alternatives
- F. Economic Analysis
- G. Public Coordination
- Z. PIR Review Checklist

Part I. Executive Summary

a. The levee contained in Ellis County Levee Improvement District Number 3 is located in the northeast corner of Ellis County about six miles east of the city of Ferris and almost four miles south of Dallas County. The levee district contains approximately 6,500 acres of agricultural land. The levee district is in an active status in the District's Rehabilitation and Inspection Program (RIP). The last eligibility report for the levee was completed in November 2005 with the levee receiving a rating of minimally acceptable. Based on the April 2007 site visit, it is evident that the levee is being maintained in accordance with ER 500-1.

b. During the period 29-30 March 2007 rainfall readings of 6 - 7 inches were gathered within the Red Oak Creek watershed. The levee within District 3 was overtopped which resulted in significant damage to the levee system at 3 locations. By letter dated 6 April 2007 the levee district requested assistance under PL 84-99 to repair damage to the levee.

c. The only option considered in addition to rebuilding the levee in place was the construction of setback levees at the damaged areas. Since none of the breaches extended significantly below the toe of the existing levee, it was determined that the additional material to construct a set back levee made it a more costly alternative than rebuilding the levee in place. Therefore, rebuilding the levee in place was selected as the recommended plan.

d. Placement of earth to rehabilitate the levees to their previous functional conditions would have no significant adverse effect on the quality of the human or natural environment. This activity would not be contrary to the Flood Insurance Act of 1968, PL 90-448 as amended, nor result in any increase of the 100-year flood level. Repair operations would avoid or minimize environmental impact to wetlands through establishment of borrow and access sites away from identified habitat.

e. Expected annual income with the levee rehabilitation was estimated at \$796,081. Expected annual income without the levee rehabilitation is reduced to \$464,211. Therefore, the total average annual benefits from levee repairs are estimated to be \$300,895. The first cost to repair the levee was estimated at \$419,865. Based on a federal discount rate of 4.875 percent and a ten-year period of analysis, the annual cost would be about \$55,352. Based on annual net benefits of \$300,895, the benefit to cost ratio is 5.44 to 1. Therefore, rehabilitation of the Ellis County Levee Improvement District No. 3 system is economically feasible.

f. In summary, the project is environmentally sound and economically feasible. SWF recommends that the project be approved for rehabilitation under PL 84-99.

Part II. Basic Report

1. Project Identification

- a. **Project Name:** Ellis County Levee Improvement District No. 3
- b. **Project's Funding Classification:** Class 320
- c. **Project's CWIS Number:** To be assigned by HQUSACE

2. Project Authority

- a. **Classification:** Non-Federal Flood Control Work (Levee)
- b. **Authority:** PL 84-99
- c. **Estimated Original Cost of Project:** Unknown; however the estimated construction at current prices is \$5,000,000.
- d. **Construction Completion of Project:** 1917
- e. **Major Modifications and Improvements:** None

3. Public Sponsors

- a. **Sponsor Identification:** Ellis County Levee Improvement District No.3
Billy Downey
9520 C.R. 262
Crandall, Texas 75154
C (214) 202-8179
Alt. Jimmy Toomey (214) 502-9998
- b. **Application for Assistance:**
 - 1.) **Issuance of District's Public Notice:** NA
 - 2.) **Date of Sponsor's Request:** 6 April 2007

4. Project Location

- a. The levee of Ellis County Levee Improvement District No. 3 is located in the northeast corner of Ellis County about six miles east of the city of Ferris and almost four miles south of Dallas County. The location of the levee district is shown in Figure 1.

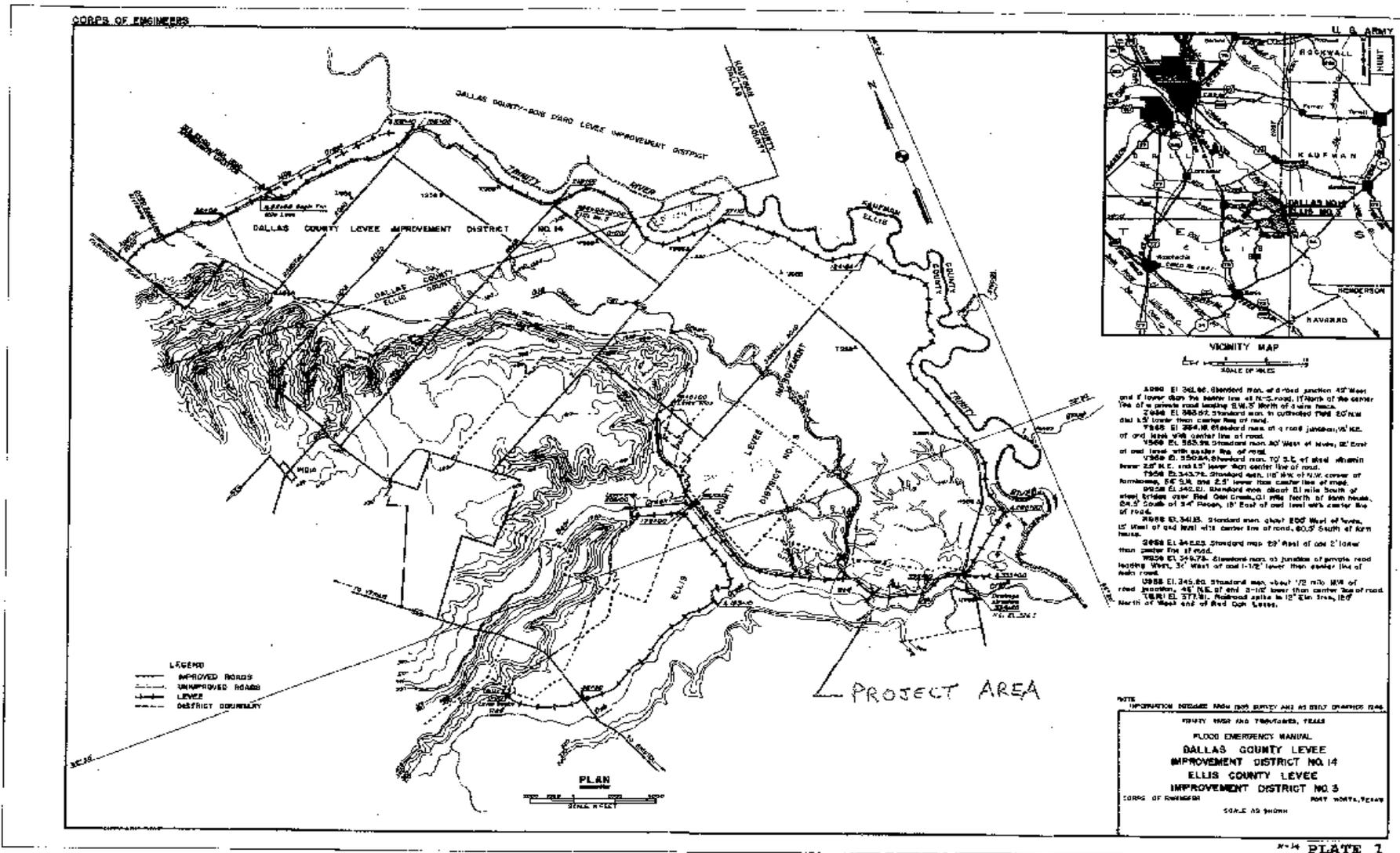


Figure 1 – Damages to Ellis Co. LID #3

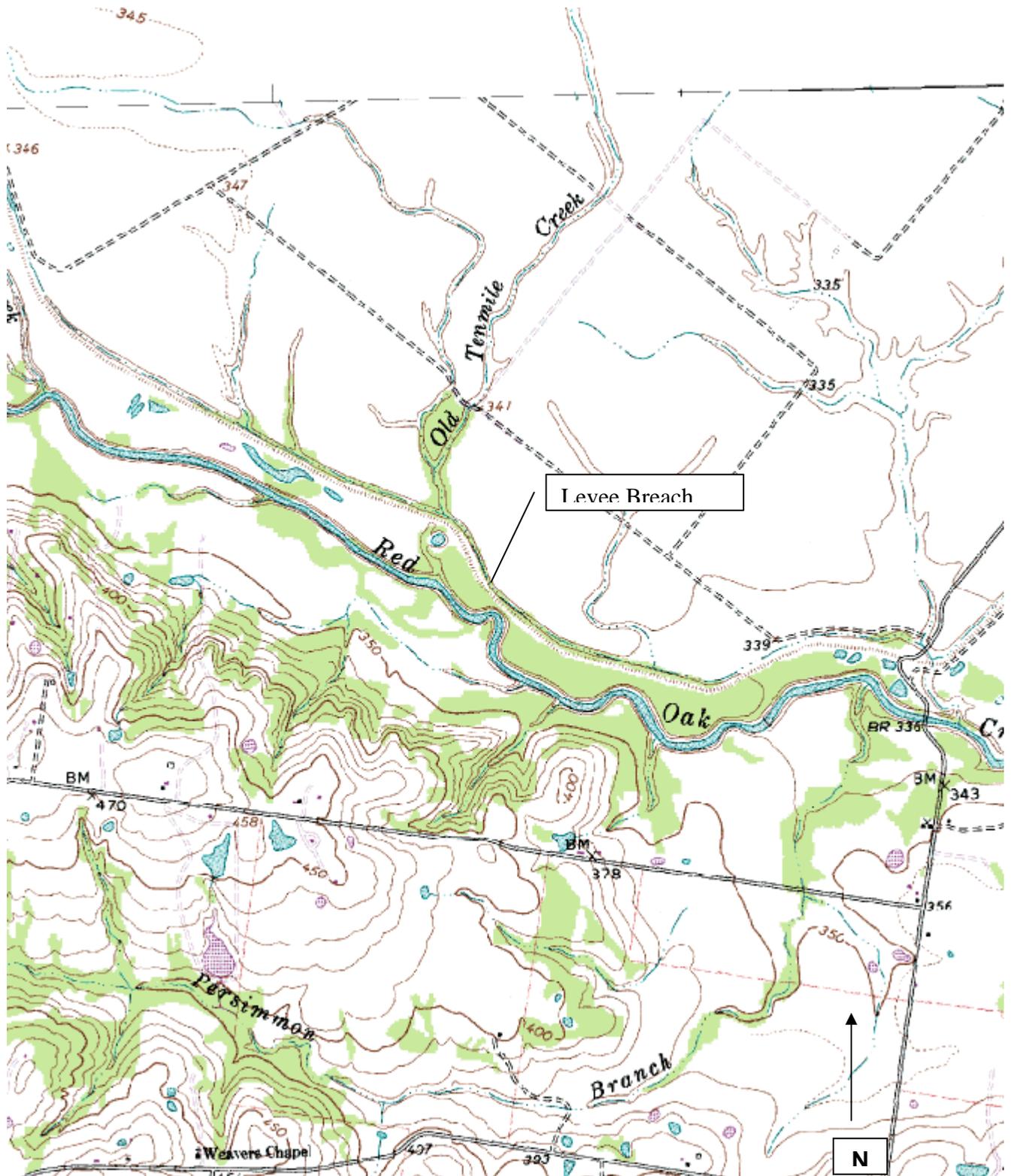


Figure 2
Levee Breach Location

5. Project Design

a. The levees have a crown width of 8 to 10 feet, side slopes of 2H:1V, and an average height of 12 feet. The levee system was constructed using local borrow material by shaping and pushing the material into a levee cross-section. Based on visual inspection of the levee and on area geotechnical data, the levee is constructed of low and high plasticity (CL and CH) clays.

b. This levee system will provide protection against a 10 percent chance (10-year) flood event.

6. Disaster Incident

a. **Date of incident:** 29-30 March 2007

b. **Description of the Flood:** From 29 March 2007 to 30 March 2007, NEXRAD (Next Generation Weather Radar) indicated a 24-hour rainfall total of 6.54 inches occurred over the Red Oak Creek Watershed, in Ellis County, near Ferris, Texas. The peak hourly intensity rainfall occurred within a 7 hour duration and combined to produce 5.97 inches of rain over the 7 hour period between 1800 hours 29 March to 0100 hours 30 March. Flows in Red Oak Creek rose and peaked on 30 March 2007, overtopping the adjacent levee system belonging to Ellis County LID #03. The result was overtopping and breaching of the levee along 500 feet of existing levees along Red Oak Creek.

7. Project Damages

a. As a consequence of heavy rainfall during the 29-30 March 2007 event, runoff within the Red Oak Creek watershed rose above the flood stage. The portion of the levee system that was damaged is located on the southeastern end, approximately 1.5 miles upstream, along Red Oak Creek, from it's confluence with the Trinity River. See Figure 1 for a layout of the levee. The total length of levee within the damaged areas is approximately 500 feet. The purpose and need of this project effort is to evaluate damages occurred from the flooding events and screen alternatives to be economically and environmentally feasible under the 84-99 guidance to put the levee system back into pre-flood conditions.

b. Table 3 provides the location of damages to the levee system. The following levee areas have been damaged as verified during the 9 April 2007 field trip.

Table 3 - Damage Location (Assume STA 0+25 at the start of levee)

Site Id	Station	Type of Failure	Length (Feet)	Compaction Fill/Cut(-) (Cu Yd)
1	0+25 0+90	Scour	65	1155

Site Id	Station	Type of Failure	Length (Feet)	Compaction Fill/Cut(-) (Cu Yd)
2	3+65 4+25	Scour	60	798
3	9+75 13+45	Main Break	370	25166

8. Project Performance Data

a. A PL 84-99 eligibility inspection of the levee was conducted on 22 July 2005. Based on the results of the field inspection, the levee is being maintained at the minimally acceptable standard in accordance with ER 500-1-1.

b. The District reports annual maintenance cost of \$1,000.00 to \$2,000.00.

9. Project Repair Alternatives Considered

Two alternatives were considered including the No Action plan and the recommended plan. It has been determined that without proposed repairs, the levees offer minimal protection to agricultural land. No adverse environmental changes are expected to occur in the flood plains as a result of the proposed levee rehabilitation actions. The No-Action Plan does not accomplish the objective of mitigating flood related damages to the previously protected agricultural area. Environmental impacts associated with the no action alternative would include the continued degradation of the levee system. Sloughing of the levee and erosive processes would increase sedimentation into the channel of Old Ten Mile creek and eventually reaching Red Oak Creek. Protection of surrounding agricultural operations from flood waters would be compromised. Over time, the project site would eventually return to a natural state.

10. Recommended Alternative

The recommended plan is to repair the levee to its pre-flood condition. This will be accomplished by excavating 21,484 cubic yards of material and placing approximately 27,119 cubic yards of compacted fill. These areas including borrow sites, totaling 72,328 square feet, would then be seeded for erosion control. Borrow material will be taken from already existing borrow areas located at the proposed project area on the landward side of the levees as well as topsoil adjacent to the site. No betterments are proposed. Construction access would be include access down the levee as well as from the adjacent agricultural operation. Best Management Practices (BMP's) would be utilized at the site to lessen construction impacts using silt fencing, hay bales, erosion control netting, etc. The proposed work would be accomplished by equipment rental contract, if applicable. The total estimated cost for this alternative is \$419,865.

11. Real Estate

This project is part of an existing levee under the ownership of the Levee Improvement District No. 3, Ellis County, Texas. All Lands, Easements, Rights-of-Way, Relocations and

Disposal/Dredge Areas (LERRDs) will be provided by the Ellis County Levee Improvement District (LID) No. 3 at no cost to the Government.

12. Economics

a. In March 2007, structural damage occurred along the Ellis County Levee District 3. A total of 6,500 acres are protected by the District's levee system. The total land value of the protected area is estimated at \$28.6 million.

b. Expected annual damages with levee rehabilitation were estimated at \$765,107. Expected annual net income without levee rehabilitation are estimated to be \$464,211. Therefore, the total average annual benefits are estimated to be \$300,895.

c. The first cost to repair the levee was estimated at \$419,865. The expected annual benefits for the project are \$300,895. The resulting benefit to cost ratio would be 5.44 to 1.0.

13. Environmental Conditions and Effects

a. Land Use & Soils – Current land use in the project area is mostly agriculturally based including pasture land and row crop production. Across Red Oak Creek is the South Forks Trinity River Mitigation Bank (SFTRMB). SFTRMB is a 486 acre area set aside for off-site mitigation for USACE authorized waters of the United States impacts. Impacts to land use at the project site would result in minor losses to planted row crops, specifically milo adjacent to the levee breach from construction activities. Land use goals and management of the mitigation bank would not be impacted from the proposed project.

The Ellis County Levees are situated in the Blackland Prairies Vegetative Area. The dominant soils of the area are Trinity clay with Frio clay most common along Red Oak Creek. These moderately alkaline soils are somewhat poorly drained to well drained, and have a high available water capacity. Permeability and surface runoff are very slow. Impacts to soils would include approximately 21,484 cubic yards of excavated material and 27,119 cubic yards of compacted fill. These areas, totaling 72,328 square feet which include borrow areas, would then be seeded for erosion control after construction. Borrow material taken would have no significant adverse environmental impact on the soils of the proposed project area.

b. Water Resources – Water resources in the area include Red Oak Creek, the Old Ten Mile Creek channel and various borrow pits in the area. Red Oak Creek flows through the mitigation bank and is a tributary of the Trinity River. The Old Ten Mile Creek remains dry most of the year only holding water after significant rain events. The borrow areas are utilized frequently for levee maintenance and only contain water during significant rain events. The proposed action includes minor levee rehabilitation at one location and associated activities, including removal of material for levee repair from borrow sites and transportation of the material to the levee section in need of repair. Materials for levee construction would come from existing borrow sites on the side of the levee away from the mitigation bank and Red Oak Creek. The borrow sites are not waters of the United States, including wetlands, under Section 404 of the Clean Water Act and no waters of the United States, including wetlands, would be affected by the construction activities. Therefore, the project would involve no discharges of dredged or fill material into Waters of the United States, including wetlands. No additional review under Section 404 of the Clean Water Act is necessary. Construction access and levee repair would not impact Red Oak Creek and would have limited temporary impacts to the Old

Ten Mile Creek channel. All work would be done when no water is present in the channel and best management practices would be utilized to limit sedimentation. Until re-vegetation occurs, aquatic biota would be temporarily impacted from the turbidity generated from suspended silt and other material in runoff from repaired sections of levees. Over time vegetation on affected areas would stabilize soils and minimize surface run-off.

Fish species common within the Trinity River and associated tributaries in the area include rough fish such as Carp (*Cyprinus carpio*), Gizzard Shad (*Dorosoma cepedianum*), and Long-nose Gar (*Lepisosteus osseus*), and smaller pollution tolerant species such as the Mosquito Fish (*Gambusia affinis*), Sunfish (*Lepomis spp.*), Red Shiner (*Notropis lutrensis*), and Bullhead Minnow (*Pimephales vigilax*). Until re-vegetation occurs, fish and aquatic biota would be temporarily impacted from the turbidity generated from suspended silt and other material in runoff from repaired sections of levees. Over time vegetation on affected areas would stabilize soils and minimize surface run-off.

Section 402 of the Clean Water Act and Chapter 26 of the Texas Water Code require construction projects involving ground disturbing activities greater than one acre to develop and implement a Storm Water Pollution Prevention Plan (SWP3). The recommended alternative would have less than an acre in ground disturbance and does not need a SWP3 developed.

The spirit and intent of EO 11988 has been considered in preparation of this report. No change will occur in the existing flood plain as a result of this action.

In the spirit of Executive Order 11990 pertaining to Protection of Wetlands the project, as proposed, would avoid adverse impacts to wetlands surrounding repair sites. All borrow material would come from the landward side of levees well away from existing wetlands. Construction equipment would gain access to repair sites through existing roads and along the top of the levee when access to damage sites is obstructed by wetlands.

c. Riparian and Terrestrial Resources – Riparian resources in the area occur along Red Oak Creek and the Old Ten Mile creek channel. Red Oak Creek runs through the SFTRMB and is comprised mostly of bottomland hardwoods in the area of the project site. The Old Ten Mile Creek channel has limited riparian resources at the project site due to the limited presence of water and activity associated with borrow material utilization, agricultural activities and sedimentation from the levee breach. Riparian resources associated with Red Oak Creek and the mitigation bank would not be impacted from the project. Impacts to the Old Ten Mile Creek would be temporary due to construction activities.

The terrestrial habitat in the project area consists mainly of bottomland hardwoods, several wetlands scattered throughout the flood plain, open water areas, gravel pits, borrow pits, and open field areas which are used for pastures and agricultural purposes.

Herbaceous species dominating the floodplain include Johnson grass (*Sorghum halepense*), Giant Ragweed (*Ambrosia trifida*), and Annual Sunflower (*Helianthus annuus*). Other herbaceous species found were Goldenrod (*Solidago sp.*), Broom weed (*Gutierrezia sp.*), Bermuda Grass (*Cynodon dactylon*), Storks Bill (*Erodium sp.*), Texas Winter grass (*Stipa leucotricha*), Button-bush (*Cephalanthus occidentalis*), Plantain (*Plantago sp.*), Big bluestem (*Andropogon gerardii*), Little bluestem (*Schizachyrium scoparium*), Vine-mesquite (*Panicum obtusum*), Switch grass (*Panicum virgatum*), Indian grass (*Sorghastrum nutans*), Eastern Gama grass (*Tripsacum dactyloides*), Plains love grass (*Eragrostis intermedia*), Canada wild rye

(*Elymus Canadensis*), Virginia wild rye (*Elymus virginicus*), Cane bluestem (*Bothriochloa barbinodis*) and bristle grass (*Setaria* sp.). Sedges (*Carex* sps. and *Cyperus* sps.) were common in the floodplain, growing to the toe of the levees. Johnson grass and milo are the dominant herbaceous species that would be temporarily impacted from the project.

Trees identified in the following section are either found in the study area or commonly found in the Trinity River channel and its tributaries. Trees are also scattered throughout the floodplain and in wetland areas. Herbaceous species, including native grasses and forbs occur in the remainder of the floodplain.

The dominant trees species are Black Willow (*Salix nigra*), Cedar Elm (*Ulmus crassifolia*), Sugarberry or Hackberry (*Celtis laevigata*), Green Ash (*Fraxinus pennsylvanica*), and Cottonwood (*Populus deltoides*). Other tree species present are Osage Orange (*Maclura pomifera*) and Mesquite (*Prosopis glandulosa*). Trees found in the Trinity River watershed include the above species in addition to red Mulberry (*Morus rubra*), Box-elder (*Acer negundo*), Pecan (*Carya illinoensis*), and American Elm (*Ulmus americana*). No trees would be removed during construction of the project.

Fish and wildlife species vary considerably within the study area. The creek channel, wetlands, open water areas, and forested areas support a variety of wildlife species with cover, food and nesting areas. Bird species reported to have been observed within the study area include Meadowlark (*Sturnella neglecta*), Mourning Dove (*Zenaida macroura*), Common Crow (*Corvus brachyrhynchos*), Red-tailed Hawk (*Buteo jamaicensis*), American Kestrel (*Falco sparverius*), Little Blue Heron (*Egretta caerulea*), Great Blue Heron (*Ardea herodias*), Cattle Egret (*Bubulcus ibis*), Mallard (*Anas discors*), Green-wing Teal (*A. crecca*), Lesser Scaup (*Aythya affinis*), Great-tailed Grackle (*Quiscalus mexicanus*), Scissor-tailed Flycatcher (*Tyrannus forficatus*), Western Kingbird (*T. verticalis*), Logger-head Shrike (*Lanius ludovicianus*), and Red Winged Blackbird (*Agelaius phoeniceus*). Amphibians, reptiles, and mammals common to the area include Bullfrog (*Rana catesbeiana*), Southern Leopard Frog (*Rana sphenoccephala*), numerous toads, snakes, turtles, Cottontail Rabbit (*Sylvilagus floridanus*), Swamp Rabbit (*S. aquaticus*), White-tailed Deer (*Odocoileus virginianus*), Hispid Cotton Rat (*Sigmodon hispidus*), White-footed Mouse (*Peromyscus leucopus*), Opossum (*Didelphis virginiana*), Raccoon (*Procyon lotor*), Bob cat (*Lynx rufus*), Beaver (*Castor canadensis*), Striped Skunk (*Mephitis mephitis*), Gray Fox (*Urocyon cinereoargenteus*), Red Fox (*Vulpes fulva*), Coyote (*Canis latrans*), Fox Squirrel (*Sciurus niger*), Nutria (*Myocastor coypus*), and other numerous small rodents and insectivores. Slow moving wildlife species living in the borrow areas or levee damage areas would be lost during excavation of borrow material and repair of levees. Other, mobile animals associated with the borrow area would be temporarily displaced to adjoining fields, woodland, and pasture areas during construction. Noise associated with construction activities would temporarily disturb terrestrial wildlife species in adjacent areas.

d. Threatened and Endangered Species - Based on information available from the U. S. Fish and Wildlife Service, the threatened or endangered species or species proposed to be listed that occur in Dallas County are the Bald Eagle (*Haliaeetus leucocephalus*), black-capped vireo (*Vireo atricapilla*), golden-cheeked warbler (*Dendroica chrysoparia*), piping plover (*Charadrius melodus*), and interior least tern (*Sterna antillarum*). The Whooping Crane (*Grus Americana*) is also reported to migrate through the project area. No critical or suitable habitat was identified in the project area that may be utilized by these species. The proposed project will not affect any species federally or state listed or proposed for listing as endangered or threatened or critical habitat.

e. Air Quality - The federal air quality program in Texas is administered by the TCEQ. The State Implementation Plan (SIP) includes Ellis County as a non-attainment area for ozone (i.e., air quality in Tarrant County has failed to meet national ambient standards for ozone). The Environmental Protection Agency (EPA) uses six "criteria pollutants" as indicators of air quality, and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). Areas of the country where air pollution levels persistently exceed the NAAQS may be designated as non-attainment areas. Conversely, areas of the country that do not persistently exceed the NAAQS are designated as attainment areas. The recommended project area would be located entirely within the Consolidated Metropolitan Statistical Area (CMSA). CMSA is currently designated as in non-attainment for 8-hour ozone. Impacts to air quality would be temporary in nature during construction primarily from heavy equipment such as front-end loaders, back hoes and dump trucks.

f. HTRW - No visual indication of possible contamination concerns are present at the proposed site.

g. Cultural Resources - Any proposed undertaking under the responsibility of the US Army Corps of Engineers, Fort Worth District must follow and account for the responsibilities under Federal and State cultural resources laws and regulations, Executive Orders, and US Army Corps of Engineers Regulations. All applicable legislative and regulatory mandates are to be considered in the event that any study provides a basis for consideration as a formally defined Federal undertaking. Any projects will need to consider the legal responsibilities and obligations of the US Army Corps of Engineers with respect to the National Historic Preservation Act (NHPA) of 1966 (PL 89-665 et seq.), the National Environmental Policy Act (NEPA) of 1969 (PL 90-190), the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601), Executive Order 13007 (accommodation of Sacred Sites (24 May 1996), Government-to-Government Relations with Native American Indian Tribal Governments (Presidential Memorandum of 29 April 1994), and Engineers Regulation (ER) 1105-2-100 (Guidance for Conducting Civil Works Planning Studies).

A review of the current archaeological/cultural resources site file information available from the Texas Archaeological Research Laboratory repository indicates no previously recorded cultural resources sites are known within the potential levee repair project area. However, no cultural resources surveys have been conducted within the area either. As surface visible significant archaeological/cultural resources are not usually located upon active floodplain surfaces, the levee repair project shall only require the archaeological/cultural resources monitoring during project execution to insure no subsurface significant archaeological resources are uncovered and damaged during subsurface project excavations within the floodplain as alluvially buried archaeological deposits are possible within the floodplain project area. Monitoring will be conducted by a USACE archaeological contractor. Terraces or any remnant terrace landforms should be avoided by all construction related activities. A letter has been sent July 17, 2007 to the Texas Historic Preservation Officer (SHPO) requesting concurrence for archaeological monitoring of the project.

h. Cumulative Effects - Past actions at the site would include the initial construction of the levee system as well as periodic repairs to the levees damaged during flood events. Other past actions at the site include actions associated with the adjacent pastures for row crop production. Present actions at the site would include the ongoing agricultural operation of the adjacent row

crop fields and grazing pastures. There are no foreseeable future actions in the vicinity of the project site besides that of the agricultural operation.

Cumulative effects to soils from the no action plan would be the continued degradation of the levee at the breach site which would result in increased sediment movement until eventual stabilization from vegetational establishment. At this point the levee would no longer be functional and both the agricultural lands and the adjacent SFTRMB would be susceptible to damages occurring from flood events. Cumulative effects to soils from the recommended alternative would be minimal given the goal of the project being soil stabilization in mind. Effects would be temporary in nature until re-vegetation occurred, therefore limiting the amount of sediment movement and soil sloughing off the levees from flood events.

Cumulative effects to water resources from the no action plan primarily would be those as a result from continued sedimentation which would lower water quality. The breach site would continue to widen and transport sediment down the Old Ten Mile Creek channel during rain events. Eventually the lowering and widening of the levee at the breach area would adversely effect water movement in rain events moving through the Old Ten Mile Creek channel. Cumulative effects to water resources from the recommended plan would be the establishment of the resources to pre-flood conditions once soils are stabilized and re-vegetation at the site is completed.

Cumulative effects to riparian and terrestrial resources from the no action plan would primarily consist of a localized change at the levee site to a system that would continue to be unstable until vegetational establishment occurred. Flooding events would eventually create a connection through the levee breach causing erosive processes from the agricultural operation to eventually impact the SFTRMB changing plant communities and those organisms that inhabit them. Cumulative effects from the recommended plan would be minimal as the riparian and terrestrial resources would return to pre flood conditions.

Cumulative effects to air quality from the no action plan would be minimal as no construction activity would take place. Cumulative effects to air quality from the recommended plan would be temporary in nature from emission releases of construction equipment. Given the small time scale and limited number of heavy machinery needed, cumulative impacts to air quality would be minimal.

14. **Public Agency and Interest Review**

A Notice of Availability is being distributed for agency and public comment concerning the proposed action. Agencies included in the review process include Texas Parks and Wildlife Department (TPWD), Environmental Protection Agency (EPA), Texas Commission on Environmental Quality (TCEQ), U.S. Fish and Wildlife Service (USFWS) and the State Historical Preservation Office (SHPO).

15. **Project Management**

- a. **Funding Authority:** PL 84-99
 - 1.) **Project Funds:** Program and Appropriation: FCCE, 96x3125
 - 2.) **Class:** 320
 - 3.) **CWIS Number:** To be assigned by HQUSACE

b. Project Funds

- 1.) A cost estimate as prepared by Engineering and Construction Division is shown in table 4.

Table 4 – Cost Estimate

	Total Cost	Federal Share	Local Share
Ellis County LID #3			
Construction	\$419,865	\$335,892	\$83,973
Engineering & Design	\$11,000	\$11,000	-
Supervision & Inspection	\$15,000	\$12,000	\$3,000
Adjustment (Maint. Defic.)	NA	NA	NA
Total	\$445,865	\$358,892	\$86,973

c. Project Repair Schedule

Table 5 - Schedule

Milestone	Date
Expected project approval date	20 August 2007
Complete construction plans and specs	7 September 2007
Contract advertisement	17 September 2007
Contract bid opening	8 October 2007
Contract award	15 October 2007
Notice to proceed issuance	22 October 2007
Construction start	1 November 2007
Construction completion	21 December 2007
Construction final inspection	4 January 2008
Fiscal closeout completed	29 February 2008

PROJECT AUTHENTICATION:

Prepared By: Larry Mendoza

Emergency Management approval by: Paul Krebs, PE

District-level approval by: Michael J. Mocek, PE

Technical Points of Contact:

Emergency Management:	Larry Mendoza
Economics:	Norman Lewis
Environmental:	Brandon Mobley
Engineering and Design:	Charles Erickson

APPENDIX A
**Project Sponsor's Request for
Rehabilitation Assistance**

04/06/2007 11:44 FAX

001/001

James H. Toomey
116 Magnolia Dr.
Ferris Tx 75125

April 6, 2007

Mr. Larry Mendoza
Army Corps of Engineers
Fort Worth, Texas

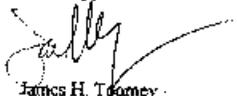
Mr. Mendoza;

On March 29, 30, and 31, 2007, heavy rains caused a seventy-foot break in the Bear Creek levee which is located in Ellis County Levee District #3. Several other places were also found to have significant erosion.

Under the Corps of Engineers Code PL 84-99, I am requesting assistance from the Corps to repair the breaks. All involved parties have been contacted and notified of a meeting Monday, April 9, 2007, at 9:30 a.m. at the headquarters of James H. Toomey Farms, 100 East India Road, Ferris, Texas. Mr. Johnny Powers and his mitigation consultants will also be present.

Thank you in advance for your cooperation and assistance in this matter.

Sincerely,



James H. Toomey
Supervisor, Ellis County Levee District #3

cc Lynn Wright, Angie Mendieta

APPENDIX B

**Project Location and Design Data, Maps and
Related Information**

See Figure 1, Page 3 of Main Report

APPENDIX C
Disaster Incident

See Paragraph 6. Page 4 of Main Report

APPENDIX D
Damages



Site 3 (Main Break)



Site 2



Site 1



Site 1

APPENDIX E
Repair Alternatives

See Paragraph 9, Page 5 of Main Report

APPENDIX F
Economic Analysis

Appendix F **Economic Analysis**

Methodology, Data, and Assumptions

Expected annual benefits associated with the proposed levee rehabilitation were estimated using the analytical framework as described in EP 500-1-1, 30 September 2001, ER 1105-2-100, Planning Guidance Notebook, 22 April 2000, Section E-20, NED Benefit Evaluation Procedures: Agriculture. Further guidance was found in IWR Report 87-R-10, National Economic Development Procedures Manual – Agricultural Flood Damage, October 1987 and Economics of Water Resource Planning by James and Lee.

Data on the project area was obtained from previous studies and interviews with the landowners and the Ellis County Levee Improvement District Number 3, and site inspections. Land values were obtained from the Real Estate Center at Texas A&M University. Crop yields and prices were obtained from the U.S. Department of Agriculture, and National Agricultural Statistics Service.

Benefits were computed as an increase in net income between the existing- and the with-project (levee rehabilitation) condition. Net income is defined as the gross income less the production costs. It was assumed the cropping pattern does not change once the levee rehabilitation is in place. The level of detail of this analysis is commensurate with the complexity and cost of the rehabilitation project.

Without and With Project Conditions

In March 2007, Ellis County Levee District No. 3 experienced structural damage along the main stem of the Trinity River. This levee project provides protection to approximately 6,500 of agricultural property, valued at \$28,600,000.

Table 1. Land Use of Protected Area

	Land (acres)	Value
Cotton	3,250	\$14,300,300
Soybeans	2,600	11,440,000
Sorghum	650	2,860,000
Total	6,500	\$28,600,000

Although cropland was inundated from the levee damage, the timing of the damage resulted in no crop damages. However, crops have since been planted and the potential loss of crops exists with the current state of the levee.

A limited economic analysis was conducted to the extent necessary to determine whether or not benefits exceeded costs to repair the damage at the sites identified within the project area. The current discount rate of 4.875 percent and a project life of 10 years were used to calculate the benefit – cost ratio (BCR). Farm equipment and gravel operations losses were not quantified for the benefit of this analysis. Repair costs were calculated by the Fort Worth District, Corps of Engineers. Operation and maintenance costs were not considered. Price levels for 2006 were used unless otherwise noted.

Flooding to this area will continue if the levee is not repaired. Agricultural damage may also be realized as a result of late planting, the inability to plant or crop loss due to continued saturation of the ground.

Average annual damages for both the without- and with levee rehabilitation project are estimated using standard stage-damage-frequency integration techniques (seasonally adjusted). Under the without levee rehabilitation, losses of net income begin to accrue with approximately two-year event. Under a with levee rehabilitation project, losses of net income begin to accrue after the ten-year event (the estimated design level of protection). While it is expected that losses in net income would increase as flood depths increase, losses of net income were assumed to remain constant throughout the range of flood frequencies. Table 2 provides the expected annual farm income without levee rehabilitation. Table 3 provides the expected annual farm income with rehabilitation of the levee.

Table 2. Expected Annual Net Income Without Levee Rehabilitation

Recurrence Interval - Year	Probability	Single Event Damages	Recurrence Interval	Damage Interval	Expected Annual Income
1	1	\$796,081			
			0.5	574,835	\$287,417
2	0.5	\$353,588			
			0.3	353,588	\$106,076
5	0.2	\$353,588			
			0.1	353,588	\$35,359
10	0.1	\$353,588			
			0.06	353,588	\$21,215
25	0.04	\$353,588			
			0.02	353,588	\$7,072
50	0.02	\$353,588			
			0.01	353,588	\$3,536
100	0.01	\$353,588			
			0.006	353,588	\$2,122
250	0.004	\$353,588			
			0.002	353,588	\$707
500	0.002	\$353,588			
			0.002	353,588	\$707
0	0	\$353,588			
					\$464,211

Table 3. Expected Annual Net Income Without Levee Rehabilitation

Recurrence Interval - Year	Probability	Single Event Damages	Recurrence Interval	Damage Interval	Expected Annual Income
1	1	\$796,081			
			0.5	796,081	\$398,040
2	0.5	\$796,081			
			0.3	796,081	\$238,824
5	0.2	\$796,081			
			0.1	796,081	\$79,608
10	0.1	\$796,081			
			0.06	574,835	\$34,490
25	0.04	\$353,588			
			0.02	353,588	\$7,072
50	0.02	\$353,588			
			0.01	353,588	\$3,536
100	0.01	\$353,588			
			0.006	353,588	\$2,122
250	0.004	\$353,588			
			0.002	353,588	\$707
500	0.002	\$353,588			
			0.002	353,588	\$707
0	0	\$353,588			
					\$765,107

Without a levee rehabilitation project, net agricultural income within the project area is estimated to be \$464,211. With a levee rehabilitation project, net income is estimated to be \$765,107, providing an estimated project benefit of \$300,895. The first cost to repair the levee was estimated at \$419,865. Based on a federal discount rate of 4.875 percent and a ten-year period of analysis, the annual cost would be \$55,352. This results in a benefit-to-cost ratio of 5.44 to 1. Based on annual net benefits of \$245,453, this levee rehabilitation project is economically feasible.

Table 4 provides the check requirements of agricultural damages.

Table 4. Check Requirements of Agricultural Damages

Average Annual Damages Prevented

- Agricultural Crops	\$300,895	
- Cotton (3250 acres)		\$171,037
- Soybean (2600 acres)		\$116,799
- Sorghum (650 acres)		\$13,058
- Residential Structures	\$0	
 Total Average Annual Benefits	\$300,895	

Project Cost \$419,865

Annual Cost

- Interest and Amortization at 4-7/8%	\$55,352
- Operation and Maintenance	\$0
- Total Average Annual Cost	\$55,352

Benefit: Cost Ratio 5.44

The Following Checks Were Performed

1.Total Value of Property Protected Greater than Cost of Repairs

Cotton	\$4,400 * (3250 acres)	\$14,300,000	>	\$419,865
Soybean	\$4,400 * (2600 acres)	\$11,440,000	>	\$419,865
<u>Sorghum</u>	<u>\$4,400 * (650 acres)</u>	<u>\$2,860,000</u>	>	<u>\$419,865</u>
Total		\$28,600,000	>	\$419,865

2. Value of Property x 5% Greater Than Benefit/Acre

	<u>Value</u>	<u>5%</u>		
Cotton	\$14,300,000	\$715,000	>	\$53
Soybean	\$11,440,000	\$572,000	>	\$45
Sorghum	\$2,860,000	\$143,000	>	\$20

3. Net Property Income Greater than Benefit/Acre

	<u>Income/Acre</u>		
Cotton	\$163	>	\$53
Soybean	\$105	>	\$45
Sorghum	-\$14	<	\$20
<u>All Crops</u>	<u>\$113</u>	>	<u>\$46</u>

4. Distribution of Project Benefits: There are two major landowners.

APPENDIX G
Public Coordination



DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

August 15, 2007

Planning, Environmental, and Regulatory Division

NOTICE OF AVAILABILITY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

Proposed Levee Rehabilitation of Levees in Ellis County
Levee Improvement District No. 3
Ellis County, Texas

All interested parties are hereby notified that the U.S. Army Corps of Engineers, Fort Worth District, proposes to repair the levee near the intersection of Red Oak Creek and the Old Ten-Mile Creek channel in Ellis County, Texas.

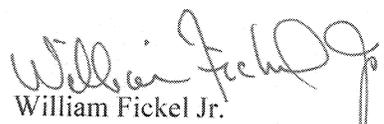
Authority. This Notice of Availability is being issued to all interested parties in accordance with the National Environmental Policy Act (NEPA) of 1969, Public Law (PL) 91-190, as amended, and the implementing regulations in Engineering Regulation (ER) 200-2-2.

Purpose and Background. Locally heavy rainfall in May of 2007 caused the Ellis County Levee Improvement District (LID) No. 3 levee to be overtopped and breached at one location. Repair work is required on the above-mentioned levee to prevent flood waters from freely flowing through the existing breach and slough, and damaging the adjacent agricultural lands.

Proposed Action and Alternatives. The proposed action would be in accordance with Emergency Rehabilitation Assistance Provisions of PL 84-99, as amended, which authorizes repair of previously serviceable structures to a pre-damage condition. Alternative plans identified included the "No-Action" alternative.

The environmental aspects of this project and the alternatives were considered in an integrated Project Information Report and Environmental Assessment (PIREA) prepared by the U.S. Army Corps of Engineers, Fort Worth District. A Draft Finding of No Significant Impact (FONSI) has also been prepared, which, pending receipt of comments to the contrary, will be finalized at the end of the comment period 15 days from the date of this notice.

Copies of the PIREA and Draft FONSI are available upon request or may be reviewed at the U.S. Army Corps of Engineers', Planning, Environmental, and Regulatory Division Office (Room 3A14). Comments should be sent to Brandon Mobley at CESWF-PER-EE, P.O. Box 17300, Fort Worth, Texas 76102-0300 or by fax at (817) 886-6499. For further information, contact Brandon Mobley at (817) 886-1714.


William Fickel Jr.
Chief, Planning, Environmental
& Regulatory Division

APPENDIX Z
PIR Review Checklist

PIR Review Checklist for FCW Rehabilitation Projects

	<u>YES</u>	<u>NO</u>	<u>N/A</u>	
1.	<u>X</u>	_____	_____	The project is active in the RIP. [ER, 5-2.a.]
2.	<u>X</u>	_____	_____	The project was damaged by flood(s) or coastal storm(s). [ER, 5-2.]
3.	<u>X</u>	_____	_____	The Public Sponsor has requested Rehabilitation Assistance in writing. [EP, 5-10.b.]
4.	<u>X</u>	_____	_____	The Public Sponsor has agreed to sign the Cooperation Agreement, which will occur before USACE begins rehabilitation work. [ER, 5-10.]
5.	<u>X</u>	_____	_____	The estimated construction cost of the rehabilitation is greater than \$15,000, and is not considered sponsor maintenance. [ER, 5-2.q.]
6.	<u>X</u>	_____	_____	The repair option selected is the option that is the least cost to the Federal government, or, the sponsor's preferred alternative is selected with all increases in cost paid by the public sponsor. PIR includes justification for non-select of the least cost alternative. [ER, 5-2.h. and 5-11.e.(3)]
7.	<u>X</u>	_____	_____	The public sponsor is aware of the opportunity to seek a nonstructural alternative project, and has decided to proceed with a structural rehabilitation. [ER, 5-16]
8.	<u>X</u>	_____	_____	The cost estimate in the PIR itemized the work to identify the Public Sponsor's cost share. [ER, 5-11]
9.	<u>X</u>	_____	_____	The rehabilitation project has a favorable benefit cost ratio of greater than 1.0:1. [ER, 5-2.r.]
10.	<u>X</u>	_____	_____	The proposed work will not modify the FCW to increase the degree of protection or capacity, or to provide protection to a larger area. [ER, 5-2.n.]
11.	_____	_____	<u>X</u>	Betterments are paid 100 percent by the Public Sponsor. [5-2.o.]
12.	<u>X</u>	_____	_____	The CA contains a provision for 80% Federal and 20% local cost share for non-Federal projects. [ER, 5-11.a.]
13.	_____	_____	<u>X</u>	Cost for any betterment is identified separately in the cost estimate. [ER, 5-2.o.]

PIR Review Checklist for FCW Rehabilitation Projects (Continued)

	<u>YES</u>	<u>NO</u>	<u>N/A</u>	
14.	<u> </u>	<u> </u>	<u> X </u>	Repair of deliberate levee cuts is the responsibility of the public sponsor, except as provided for in ER 500-1-1, paragraphs 5-2.j. and 4-3.h. [ER, 5-2.j. and 4-3.h.]
15.	<u> </u>	<u> </u>	<u> X </u>	All deficient and deferred maintenance will be paid for or accomplished by the Public Sponsor, without receiving credit toward any sponsor's cost share. [ER, 5-2.g.]
16.	<u> </u>	<u> </u>	<u> X </u>	Any relocation of levees is adequately justified. [ER, 5-2.h.]
17.	<u> </u>	<u> </u>	<u> X </u>	USACE assistance does not correct design or construction deficiencies. [ER, 5-12.a.]
18.	<u> X </u>	<u> </u>	<u> </u>	An assessment of environmental requirements was completed. [ER, 5-13., and EP, Figure 5-3, paragraph 12.]
19.	<u> X </u>	<u> </u>	<u> </u>	The project complies with NEPA, and required documentation was completed and placed in Appendix G of the PIR. [ER, 2-3.k.; ER, 5-13.; and EP, Figure 5-3, paragraph 12.]
20.	<u> X </u>	<u> </u>	<u> </u>	The Endangered Species Act was appropriately considered. [ER, 5-13.g., and EP, Figure 5-3., paragraph 12.]
21.	<u> X </u>	<u> </u>	<u> </u>	EO 11988 requirements were considered in the process of evaluating the proposed project for rehabilitation. [ER, 5-13.f., and EP, Figure 5-3, paragraph 12.]
22.	<u> X </u>	<u> </u>	<u> </u>	The completed PIR has been reviewed and the PIR Checklist has been reviewed and signed by the Emergency Management Office. [EP, 5-11.a.(3)(a)]
23.	<u> X </u>	<u> </u>	<u> </u>	The completed PIR meets all policy, procedural, content, and formatting requirements of ER 500-1-1 and EP 500-1-1. [ER, 2-3.b.]

EM REVIEWING OFFICIAL'S SIGNATURE

PAUL D. KREBS, P.E.
Chief, Emergency Branch
871-886-1445