



REPLY TO
ATTENTION OF

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

CESWF-PM-C

13 JUL 2011

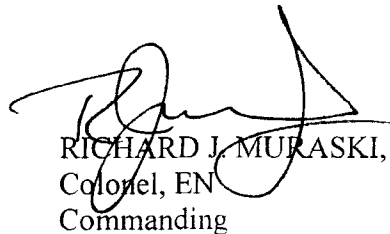
MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, Southwestern Division,
Brigadier General Thomas W. Kula, (CESWD-PDP/Ms. Lanora Wright), 1100 Commerce
Street, Dallas, TX 75242-1317

SUBJECT: Review Plans for Little Fossil Creek, Farmers Branch and Pecan Creek Section 205
Projects

1. Reference email and enclosures dated July 2011 regarding Review Plans for the above projects.
2. Fort Worth District Engineering Branch made an assessment that all three projects did not require a Type II Independent External Peer Review (IEPR) (Safety Assurance Review) in a Memo dated 28 Jan 2011. Concurrence from the Risk Management Center that a Type II IEPR was not needed was received on 1 July 2011.
3. The Agency Technical Review (ATR) for all three projects was conducted with an internal team of SWF Team Members from various disciplines with the ATR Team Leader being within the Fort Worth District.
4. Request approval of the Project Review Plan, concurrence with the assessment that a Type II IEPR is not necessary, and for an exception to the requirement for the ATR Team Leader to be from outside the home Major Subordinate Command.
5. The Point of Contact for this action is Mr. William W. Haferkamp, Program Manager, (817)886-1713.

- 4 Encls
1. Review Plan for Little Fossil Creek
 2. Review Plan for Farmers Branch
 3. Review Plan for Pecan Creek
 4. Email from Risk Management Center (RMC).
concerning Type II IEPR

- () Approve
() Disapprove


RICHARD J. MURASKI, JR.
Colonel, EN
Commanding

Review Plan for Little Fossil Creek Flood Control Project, Haltom City, Texas

Fort Worth District
U.S. Army Corps of Engineers

06 July 2011

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1. Introduction

1.1. Project Information

Project Title: Little Fossil Creek Flood Damage Reduction Project, Haltom, City, Texas.

Project Description: Haltom City is located in Tarrant County, generally northeast of downtown Fort Worth. The study area is the lower portion of the watershed, which includes the area from the confluence with Big Fossil Creek upstream to Beach Street – a stream length of approximately 23,000 feet. Little Fossil Creek and its tributaries are located entirely within north central Tarrant County. The stream originates near Saginaw and flows southeasterly through Blue Mound, Fort Worth, and Haltom City where it confluences with Big Fossil Creek near the West Fork of the Trinity River. The channel in the lower portion of the creek, downstream from Beach Street, shows signs of having prior channelization. Approximately half of Little Fossil Creek upstream of Beach Street has been channelized by non-federal entities. The entire watershed averages 1.7 miles in width and 11 miles in length with a drainage area of 18.26 square miles.

The U.S. Army Corps of Engineers, Fort Worth District, acting at the request, and in coordination with Haltom City, conducted a Little Fossil Creek, Haltom City, Texas, Local Flood Damage Reduction Feasibility Study under the authority of Section 205 of the 1948 Flood Control Act, as amended. The feasibility study was conducted in response to the letter of request, dated May 25, 1994, from Haltom City.

Structures located within the Little Fossil Creek study area are prone to frequent flooding. The 803 structures located within the 500-year limits of the study area are estimated to sustain \$2,091,000 in average annual flood losses for present conditions. The October 1981 flood is the flood of record, estimated at a 1 percent chance exceedence (100 year frequency) event. It caused approximately \$10 million in damages (in 1981 dollars).

The Recommended Plan consists primarily of a 75-foot average bottom width, combination grass- and concrete-lined trapezoidal channel with one-sided, alternating bank side slope cuts where possible. The plan would begin approximately 1,100 feet downstream of the Trinity Railway Express (TRE) Bridge and proceed upstream to a point just downstream of the Belknap Street Bridge. The total project has an aggregate length of 7,350 feet, which includes channel widening and deepening, including erosion control features where necessary. In order to provide the needed channel capacity to pass the 100-year storm event through the Carson Street/S.H. 121 Bridge group, while sustaining velocities up to 15 fps with minimal friction losses, a 45-foot bottom width concrete-lined, trapezoidal channel with 1.5:1 side slopes will be constructed. This channel configuration is the largest allowable without replacing all bridge structures, while still preventing the split flow to the east. The Recommended Plan also calls for gabion lining to be used in the section just upstream of the Midway Road Bridge.

The Recommended Plan also proposes a multi-purpose trail designed to provide access for hiking, jogging, bicycling and nature study. The plan consists of approximately 6,250 linear feet of ten-foot wide concrete multi-use trail along the west side of Little Fossil Creek, connected by a low-water crossing to an additional 6,000 linear feet of six – eight foot unsurfaced nature trail, circling a small lake in the mitigation area.

The trail system will be easily accessible from adjacent neighborhoods. Residents who do not live nearby will be able to drive and park their vehicles at one of the four access areas located on Orval Court, Belknap Street, Garden Street, and the Mitigation Area.

Implementation of the Recommended Plan will cause the displacement of seven residences and one horse barn. All of these residences are located along Orval Court on the west side of Little Fossil Creek, just downstream of Thomas Road. Replacement housing is readily available in the general vicinity. Total estimated cost for acquisition and relocation assistance is approximately \$445,000.

The proposed mitigation area for the Little Fossil Creek flood damage reduction project is located at the southern terminus of the project area, between the east bank of Little Fossil Creek and the Trinity Waste Landfill, south of the TRE Railroad. The mitigation area is comprised of 11.04 acres of forested habitat, 19.89 acres of open water, and 33.11 acres of scrub shrub/old field habitat. The water body is an old gravel quarry with little or no aquatic habitat present. Preliminary coordination with the Fish and Wildlife Service has indicated that a possible mitigation plan for this area could include converting all old field/scrub shrub habitat to a bottomland hardwood riparian forest community by planting such species as pecan, bur oak, red oak, red mulberry, coral berry, Indian cherry, etc in the appropriate densities (80 trees and 30 – 40 shrubs per acre). An additional restoration feature of the mitigation area would be to use clean excavated overburden from the project to create 10 acres of shallow water wetland habitat. Populations of native aquatic plants would then be established in the shallow water through deliberate planting.

Losses of stream aquatic habitat will be mitigated primarily through restoration of pool/riffle complexes. The upper reach between Belknap and Midway will be restored to the existing condition of one meander wavelength that consists of 3 riffles, each occurring at the inflection points, and 2 pooled areas. The reach between Midway and the upstream end of the concrete channel, approximately 3,000 feet in length, will be designed to restore 6 meanders that will include 12 riffles and 12 pools. Finally, the southernmost reach from Carson to the downstream limit of the project will contain 1 meander including 3 riffles and 3 pools. The geometry of a naturally meandering stream varies with each channel cross-section, based on width, depth and slope. Other instream techniques will also be applied, where feasible, which include boulder clusters, rock check dams, and natural channel constrictors and deflectors. In addition, starting 1 year after completion of construction of aquatic mitigation features, the project area will be studied if impacted functions of the aquatic ecosystem are returning. Using Construction funds that have been included in the project cost estimate, the Corps will

use the methodology endorsed by the U.S. Fish and Wildlife Service to indicate the degree that biotic integrity has been restored. If functions have not been restored after 3 years, then other mitigation actions will be conducted.

The Recommended Plan also represents the Federal NED Plan. The estimated total project first cost of this plan would be \$ 11.1 million. The project cost and expected annual net benefits, annualized over a 50-year period at 6.375 percent interest rate, are estimated at \$800,000 and \$1.6 million respectively. The resultant project benefit-to-cost ratio would be 3.0. -The Recommended Plan would alleviate approximately 82% percent of the expected annual flood damages estimated to occur within the Little Fossil Creek study area between the Belknap Street and State Highway 121.

The flood control plan as proposed will provide a very high degree of protection to residences along Little Fossil Creek from floodwaters emanating from the creek. Also, local drainage problems observed by a number of residents should be improved as the Recommended Plan increases the flow capacity of the Little Fossil Creek. The proposed project was designed to a level of protection which reasonably maximized annual net benefits, i.e., the difference between project benefits (monetary reduction in flood damage) and project (implementation) costs when both are expressed in annualized terms. The proposed project generally provides for a 50-year level of protection meaning a flood event with a 3% annual chance exceedence will remain within the modified channel. For the 1% annual chance exceedence, a number of structures will be inundated; however, a smaller number and less depth. The life safety risk associated with the proposed project is low.

By the very nature of earthen, grass-lined, channel modification projects, safety risks will either remain static or otherwise be lowered with project implementation, since frequencies of flood inundation will be significantly reduced. Likewise, with respect to the non-structural buyout plan, safety risks will either remain static or otherwise be lowered, with project implementation, since the affected occupants are inherently removed from the area posing those safety risks. This project also provides reductions in safety risks associated with roadway crossings, since bridges will be overtopped significantly less frequently.

1.2. Review Team

Review Management Office:

Role	Name	Telephone
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Quality Control Review Team

Role	Name	Telephone
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2. Requirement

This Review Plan was developed in accordance with EC 1165-2-209, which established the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) documents through independent review. The EC's outline includes three levels of review: Quality Control, Agency Technical Review, and Independent External Peer Review.

This project has a very low life safety risk because it is a channel improvement project where the designed flood capacity remains in the channel. Consequently, the Agency Technical Review performed by the District on the AE design at 35 / 65 / 95 percent, and final design adequately addressed all life safety issues.

This Review Plan will be reviewed by the PDT and approved by the Southwestern Division Major Subordinate Command. After approval, this Review Plan will be posted on the Fort Worth District website at: www.swf.usace.army.mil.

3. References

- EC 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
- ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
- WRDA 2007 H. R. 1495 Public Law 110-114, 8 Nov 2007
- EC 1105-2-410, Review of Decision Documents, 22 Aug 08
- Army Regulation 15-1, Committee Management, 27 November 1992 (Federal Advisory Committee Act Requirements)
- National Academy of Sciences, Background Information and Confidential Conflict Of Interest Disclosure, BI/COI FORM 3, May 2003

4. Summary of Required Level of Review

District Quality Control (DQC):

- Purpose: Review of science and engineering work products
- Managed by: AE Project Manager
- Performed by: AE Technical Team Members
- Required for: All work products, reports, evaluations, and assessments
- Documentation: DrChecks

Agency Technical Review (ATR):

- Purpose: Ensure the quality and credibility of the government's scientific information and verify compliance with National Environmental Policy Act (NEPA) and other environmental compliance documents
- Managed by: District Project Manager
- Performed by: District Senior Technical Team Members, preferably recognized subject matter experts
- Required for: Design Documentation Reports and Plans & Specifications
- Documentation: DrChecks and Review Report
- Review Management Organization: Southwestern Division MSC

Type II IEPR (Safety Assurance Review):

- Purpose: Ensure that the project as designed and constructed does not represent a significant life safety risk to the community
- Managed by: Risk Management Center (RMC)
- Performed by: SWF Engineering Branch's assessment of the project concluded that a Type II IEPR was not required for the Little Fossil Creek Project. This was documented in a Memo dated 28 Jan 2011. All documentation was sent to the RMC for concurrence. In an email dated 1 Jul 2011 the RMC agreed with the assessment and concurred that a Type II IEPR was not required.

5. Execution Plan

5.1 District Quality Control

Given the relatively simple nature of the project and the low life safety risk, the AE's Quality Control provided the appropriate level of technical review ensuring the project design provides the stated protection and will function as designed. The independent technical review conducted during the feasibility phase and the value engineering study conducted during the plans and specifications phase greatly assisted this process with the early identification of topics addressed during design. More importantly, the design and plans and specifications were completed using a highly qualified AE firm with significant experience resolving local flooding and drainage issues and solutions in Haltom City. The AE's Quality Control team was highly qualified, experienced in flood risk management projects, and were involved in every facet of the design process from contractor scope development, technical review of submittals, and back-checks. Their reviews were critical and comprehensive.

5.2 Agency Technical Review

The Little Fossil Creek Project was designed by an AE firm and reviewed by District staff members who are considered USACE technical experts. Reviews were conducted at 35 / 65 / 95 percent, and final design. Quality checks and reviews occurred during the project development process, and was performed by technical experts within the District but not engaged in the original work. The internal review process was focused on fulfilling project quality requirements as defined in the Project Management Plan (PMP). DrChecks was the application of choice to satisfy documentation requirements and record maintenance in accordance with MSC and district quality manuals. All Dr. Checks comments were reviewed and back-checked by the appropriate Technical Expert and are available in the Dr. Checks System for MSC Review if needed.

5.3 Value Engineering Study

A Value Engineering Study was conducted by the Office of the Chief Engineers Value Engineering Study Team (OVEST) on the Little Fossil Creek Project in September of 2003. Findings are documented in a VE Study Summary Report on file at SWF. Eleven different cost saving proposals were documented and discussed with several including recreation trail surfacing and trail width being adopted into the projects final design.

6. Cost Estimate:

- **DQC:** The DQC review is complete and was paid for as part of the design costs. The quality control reviews were conducted by the AE and documented in DrChecks.
- **ATR:** The ATR reviews are complete and were paid for as part of the design costs. Reviews were conducted by USACE technical experts and documented in DrChecks.

- **Type II IEPR:** Since the project is a channel modification/permanent evacuation project where it is anticipated the designed flood control capacity will remain within the modified channel, the project has received a determination that there is no life safety risk; therefore no additional IEPR reviews will be required. Reference Memo from SWF Engineering Branch and concurrence email from RMC.

7. Project Schedule:

Significant Items Completed to Date:

Feasibility Phase:	Jan 2003
VE Study:	Sep 2003
DQC, ATR:	Jul 2011

Remaining Project Tasks and Expected Completion Dates:

Corrected Final Plans and Specifications:	25 Jul 2011
BCOE Certification:	05 Aug 2011
Request for Proposal to 8A Contractor:	08 Aug 2011
Award Construction Contract:	21 Sep 2011