

**APPENDIX E**  
**USACE GUIDANCE DOCUMENTS**

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**DEPARTMENT OF THE ARMY**  
**U.S Army Corps of Engineers, Fort Worth District**  
**P.O. Box 17300**  
**Fort Worth, Texas 76102-0300**

**SWFP 1150-2-1**

Pamphlet  
No. 1150-2-1

31 October 2003

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Local Cooperation  
**CRITERIA FOR CONSTRUCTION WITHIN THE LIMITS  
OF EXISTING FEDERAL FLOOD PROTECTION PROJECTS**

**1. Pamphlet Purpose.** This pamphlet provides guidance to individuals, developers, architect-engineering firms, local project sponsors, and local governmental agencies for the construction of new facilities or the modification of existing facilities within the limits of an existing Federal flood protection project constructed by the U.S. Army Corps of Engineers, Fort Worth District (CESWF) and for which local project sponsors and/or local governmental agencies have the responsibilities for operation and maintenance. The CESWF, in accordance with Title 33 CFR, Section 208.10, retains the right of review and approval on all proposed improvements and/or modifications that are passed over, under, or through the walls, levees, improved channels, or floodways of such projects. The guidance contained in this pamphlet applies to the activities described herein in most cases; however CESWF reserves the right to reconsider this guidance at any time due to unknown or unforeseen circumstances, technological advances, additional information, etc.

**2. Applicability.** This pamphlet applies to all Federal flood protection projects constructed by CESWF, and for which a letter of assurance agreeing to the operation and maintenance of the flood protection project has been furnished CESWF by the project's local sponsor.

**3. Project Purpose.** A Federal flood control project is designed to safely carry floodwater within the project and through a developed area. As such, any proposed developments within the project must keep the safe passage of floodwater as the first priority. The roles of the CESWF and the project local sponsor are to maintain the integrity of the project while preventing negative impacts to the passage of the project design flood. The CESWF will not allow the safety of the project to be compromised or the required design carrying capacity of the project reduced.

**4. General Criteria for Construction Within a Floodway.**

a. As early as possible during the planning process, discuss preliminary proposals with the CESWF and the local sponsor to avoid major revisions or project delay. The local sponsor may make any requirements of this Pamphlet more stringent than those contained herein. Concept proposals may be submitted for review. Submit the proposed construction starting date and the detailed project construction schedule, including sequence of construction prior to initiation of work.

b. Construction may not start until final written contract drawings and plans have been reviewed and approved in writing by both the CESWF and the local sponsor.

c. Furnish five (5) sets of plans and specifications for the proposed work to the CESWF, Operations Division, ATTN: CESWF-OD-M, via the local sponsor sufficiently in advance of proposed construction to allow adequate time for review and approval. A vicinity map shall be included in the plans showing the right-of-way boundaries of the flood protection project with specific levee toe and channel slope limits in the portion of the project being crossed, if applicable.

This pamphlet supersedes SWFP 1150-2-1 dated 15 October 1985.

d. If boring, jacking, or tunneling operations are planned; detailed designs, calculations, and construction procedures must be provided for review. See subsequent paragraphs for additional details and required procedures.

e. Practice approved construction methods and best management practices to minimize erosion at the construction site. All work shall be performed in such a manner as to be as environmentally friendly as possible. This includes making every effort to reduce the turbidity of the water at the site, such as by limiting the amount of time construction equipment is in the water. A storm water pollution prevention plan (SWPPP) must be included in the final project submittal.

f. When construction work is in progress in a project located downstream of a Federal dam, a request from the contractor for changes in regulated releases will be considered on individual cases only. Normally, regulated releases from upstream lakes for evacuation of floodwaters, water supply, recreation, or other purposes considered to be in the best interest of the public will have first consideration. A flood event could occur at any time during construction activities and could affect these activities.

g. Construction equipment, spoil material, supplies, forms, buildings for inspectors, labs, or equipment and supply storage buildings, etc., shall not be placed or stored in the floodway during construction activities. Any item that may be transported by flood flows shall not be stored within the project. Locations of construction trailers and stockpile areas shall be included on project plans and approved by the CESWF and the local sponsor.

h. In addition to other requirements set forth in this Pamphlet, permits may be required under Section 10 and Section 404 for the desired work. These permits require a minimum of 90 days to process. It is recommended that contact with the CESWF Regulatory Branch be initiated in the early planning stages to prevent delays.

i. Repair or replace any maintenance and operation roads disturbed during construction to a condition equal to or better than their condition before construction. All roads must be inspected by the local sponsor prior to completion of the project.

j. Compact all fill and backfill in 6-inch lifts as specified in job specifications approved by the CESWF. Compaction shall be to at least 95 percent of modified density as specified in ASTM D-1557. All backfill shall consist of impervious materials. Reestablish vegetation to its original condition or better. Remove all excess material from the limits of the floodway.

k. Provide scour protection consisting of articulating revetment system protection capable of being re-vegetated at the outfall of stilling basins designed according to the issuing jet velocity. If approved by the local sponsor, riprap, gabions, or concrete paving may be substituted for the revetments.

l. The crown or crest of the levee referred to in this pamphlet is the original or design levee crest elevation. This may or may not be the same as the current levee crest elevation. All modifications shall be based on the higher of the two elevations.

m. Upon request, the CESWF Hydrology and Hydraulics Section may provide applicable hydraulic models to be used for design.

n. Any permanent disturbance of existing recreation facilities must be mitigated.

o. Sump areas adjacent to federal projects are considered an integral part of the federal project and any modifications to them will be reviewed and approved in accordance with this Pamphlet.

## **5. Crossing Over Existing Levees At Grade.**

- a. The local sponsor may decide to not allow any proposed crossing over existing levees at grade.
- b. No excavation or notching will be performed into or on the levee, or within the levee template.
- c. Strip topsoil from the levee and place the line up and over the levee template slopes at grade. This will require rather abrupt line grade changes at the levee crest. Cover the new line by placing new fill uniformly on the slopes and top of the levee to slope away from the line and parallel to the longitudinal axis of the levee. Provide a minimum of 2 feet of cover over the new line. The slope of the fill shall be 1 vertical on 20 horizontal or flatter. Replace the topsoil, reestablish grass on all disturbed areas, and restore any roadways.
- d. All valves located within 15 feet of either side of the projected toe of the levee shall be provided in a concrete box enclosure with a manhole type cover. Valve boxes located within the floodway shall be underground and flush with the surface. If the valve box is placed in the levee crest, the bottom of the excavation shall be not lower than one foot above the design water surface elevation. Fill shall be uniformly placed to slope away from the top of the valve box. If possible all valves shall be placed on the landside of levees a minimum of 15 feet from the projected levee toe.
- e. Provide water-tight sealed manhole covers for all manholes within the floodway having tops below design water surface elevation. Fasten manhole covers to the manhole structures.

## **6. Crossing Under Levees with Open Excavation.**

- a. Provide a temporary ring levee (cofferdam) on the riverside of the existing levee at the location of the subject crossing to the same top elevation as the existing levee. This ring levee shall have a minimum crest width of 10 feet and sides slopes of 1 vertical on 3 horizontal or flatter. Construct the levee of impervious materials according to the provisions specified in Paragraph 4j.
- b. When the temporary ring levee is complete, excavate through the existing levee using one vertical on three horizontal cut slopes. The toe of the levee and ring levee shall be a minimum of 20 feet (measured horizontally) from the top edge of the excavation.
- c. Generally, sources for borrow materials shall not be located within the limits of the floodway right-of-ways. In addition, depending on the type of soil and whether or not pervious materials or unstable materials exist in the foundation of the existing levee, it may be desirable to limit the depth of excavation or specify a minimum distance from the land-side toe of the levee. All excavated slopes shall be properly designed and the drawings sealed by a registered professional engineer.
- d. After the line has been placed, the open excavation will be compacted in accordance with Paragraph 4j. When backfill operations are completed, the entire foundation area to be occupied by the replaced levee fill shall be scarified, plowed, and/or harrowed to a depth of 6 inches, and then compacted by at least 16 complete passes of the tamping roller or 95 percent modified density, whichever is more rigorous.
- e. Accomplish levee replacement by placing fill in 6-inch lifts and compacting by not less than eight complete passes of a tamping roller or at least 95 percent modified density. After compaction, the moisture content shall be within the limits of 3 percentage points above optimum to 2 percentage points below optimum moisture content.

f. Determine the in-place moisture content and density of the levee fill on a frequency of about one sample for each 2500 cubic yards of backfill placed in the levee.

g. When the breached levee has been reconstructed to its original grade, remove the temporary ring levee and dress and turf the surface areas of the plugged section.

h. Provide water-tight sealed manhole covers for all manholes within the flood protection project having tops below design water surface elevation. Fasten manhole covers to the manhole structures.

i. For pipelines, install a positive cut-off structure to prevent water from the riverside flowing through the pipeline to the landside. If located on the riverside of a levee, extend the cut-off structure to the levee crown elevation by bridge. This structure must be accessible no matter what flood condition may exist. The closure device must be operational by manpower, if necessary.

j. Provide gravity storm drains discharging into the floodway with automatic flap gate(s) at the discharge end of the line and energy dissipaters, as required. The owner or local sponsor, as per written agreement, shall be responsible for inspection and maintenance to ensure proper operation of the flap gates.

k. Use monolithic conduits or conduits with water-tight joints under the levee and levee template.

**7. Crossing Under Levees with Boring or Jacking of Sleeves.** The sequence of work shall be as follows:

a. Excavate the boring and jacking pit (must be on the land side outside the projected toe of the levee template slope).

b. Bore and jack the sleeve to a point beyond the projected riverside toe of the levee template slope.

c. If the difference in the diameters of the bore and sleeve exceeds 3 inches, the annular space shall be pressure grouted with bentonite slurry.

d. Place the product line in the sleeve.

e. Pressure grout the product line in sleeve with bentonite slurry.

f. Excavate the pit on the riverside and construct a manhole with gate valve placed on inside face of manhole away from channel. Tie line from sleeve under levee into manhole with gate valve.

g. Tie line from sleeve under levee into a manhole on landside.

h. During work on items a through h, a plug will be required to be placed and braced at the open end of the sleeve and pipe located in the jacking pit at the close of work each day. This plug must remain in place until the gate valve is installed and connections made to ensure protection from flooding from the river.

**8. Horizontal Directional Drilling Under Levees and Channels.**

a. Detailed contractual drawings, plans, procedures, and engineering calculations shall be provided to CESWF for review. These must include all the requirements of Paragraph 4 above and the following additional items:

(1) Inside diameter of the final bore hole and outside diameter of the product casing.

- (2) Detailed description of construction and horizontal boring methods to be utilized.
  - (3) If the difference in the diameters of the final bore and product casing exceeds 3 inches, provide the method of pressure grouting the annular space between the outside of the product casing and the inside of the bore to prevent seepage under the levee template during maximum river stages.
  - (4) A profile of the proposed line showing alignment (including location of the river and levees).
  - (5) Location of entry and exit points, location, elevations and proposed clearances for all utility crossings and structures
  - (6) Right-of-way lines, property, and other utility right-of-way or easement lines
  - (7) Depth under the base of the levee, depth of the line under the river channel, and location of both ends of the string. If the proposed depth of the string directly below the base of the levee is less than 30 feet, then detailed engineering calculations sealed by a registered professional engineer shall be provided for review. These calculations must show a minimum 1.5 factor of safety against hydro-fracturing to be acceptable.
- b. Develop and provide a quality control plan for the project that includes the maximum allowable drilling pressure, gage calibration method, and responsibility for assuring that the pressure is not exceeded.
  - c. The minimum clearance distance from the top of the pipe encasement to the original design river bottom elevation shall be 7 feet. Should the existing channel bottom elevation be lower than original design grade, the new line shall be the discussed depth below the existing bottom elevation.
  - d. Develop and provide a quality control plan for the project that includes the maximum allowable drilling pressure, gage calibration method, and specific responsibility for assuring that the pressure is not exceeded. During the drilling process, the pressure in the borehole must be monitored to ensure that the operational drilling pressures remain within the safe limits to prevent soil fracturing. The name of the party responsible for monitoring the work must be specified.

## **9. Bridges Crossing Levees.**

- a. The bottom of low steel of the bridge shall be above the design crest elevation of the levee. No notching into the levee will be allowed.
- b. All bents should be located to minimize the number of bents located within the template of the levee. Driving of piles within the template of the levee will not be allowed. Bents at these locations should only be designed as drilled piers.
- c. Bridges will not be located where their construction will block maintenance access roads presently located within the floodway.
- d. All storm water runoff from bridge decks must be piped to grade to prevent erosion within the floodway.
- e. Re-vegetated mat type slope protection must be provided from the top of the levee to the floodway bottom under the shadowline of the bridge.

f. The bridge must be designed to minimize the number of pier bents. If the new bridge is within 500 feet of an existing bridge the new pier bents must be in alignment with the adjacent bridge.

#### **10. Buried Lines Parallel to Levees and Channels.**

a. Buried lines parallel with a levee (either on the river side or land side) will not be allowed where the buried lines final location will be within the extended template of the levee. For example, a line buried 5 feet deep must be at least 15 feet away from the toe of a levee with a 1 vertical on 3 horizontal slope.

b. Sumps, ditches, swales, or other project features crossed by the buried line shall be restored to their pre construction condition.

c. Buried lines parallel with the channel bank must be at least 25 feet from the projected river channel slope template.

d. When a buried line crosses a discharge channel, place the line on piers with the piers aligned so as to provide minimal obstruction to flow in the discharge channel and designed so as to catch minimal debris. The preferred alternative would be to place the line under the discharge channel and encase it with concrete. Extend the encasement a minimum of 5 feet beyond the top of the channel side slopes.

#### **11. River and Channel Crossing Criteria.**

##### **a. Crossings Under Rivers and Channels by Open Excavation:**

(1) Bury the line a minimum of 7 feet below the original design river bottom elevation. Should the existing channel bottom elevation be lower than original design grade, the new line shall be the discussed depth below the existing bottom elevation.

(2) Sufficiently anchor or encase the line to prevent floatation.

(3) Backfill the excavation with material similar to that excavated. If soil is excavated, backfill with compacted impervious fill material and if rock is excavated, backfill with concrete.

(4) No cofferdam fill type crossings shall be allowed in water greater than six (6) feet in depth, and will then only be allowed if geotechnical and structural designs prove that sheet piling would not be a viable method.

##### **b. Crossings Over Rivers and Channels.**

(1) Provide a minimum freeboard between the low point of the crossing and the design water surface elevation of three feet or to the top of any levee, whichever is higher.

(2) The obstruction caused by the supporting bridge and its piers shall not significantly reduce the carrying capacity of the floodway. No longitudinal cross bracing will be used.

(3) Submit final plans and hydraulic computations to indicate that the proposed project would not reduce the floodway capacity.

(4) Projects crossing navigable waterways (Trinity River downstream from Riverside Drive in Fort Worth, Texas) shall require a United States Coast Guard permit. Clearances and requirements shall be as directed by the Coast Guard.

## **12. Roadway or Railroad Crossings.**

a. The low steel of a bridge shall have an elevation not lower than the crown of the levee or top of bank or 3 feet above the design water surface, whichever is higher. Contact CESWF for the current design water surface at the location of the proposed roadway crossing. Additional clearances shall be required for fixed spans over navigable waterways.

b. Submit final plans and hydraulic computations to indicate the proposed roadway or bridge would not reduce flows or project capacity. Projects will not be approved that reduce the carrying capacity of the project.

c. Any roadway over a navigable waterway will require a permit from the United States Coast Guard.

d. See Paragraph 9 for special requirements for crossing levees.

e. Hold temporary roadway fill to a minimum to prevent increasing the water surface elevation should a flood occur during the construction period. Construct all temporary ramps from levees going in a downstream direction. This will prevent flows from being directed into the face of the levees.

## **13. Headwall, Chutes, Gate Valves, Flap (Automatic) Gates, etc.**

a. Install headwall, gate valve structures, flap (automatic) gates, and other types of outfall structures in such a manner to prevent obstruction of flow or creation of scouring conditions within the project. All headwalls must transition with the slope and flow discharge points must be at an elevation equal to the bottom of the slope or at the normal water surface. Chutes will not be allowed unless they are the only viable alternative.

b. All structures shall be installed in such a manner so as to not create maintenance problems.

## **14. Pump Discharge Pipelines Over Levees.**

a. The invert of the discharge shall be at the toe of the protective works (levee) and shall be free-vented at the highest point. For very large lines deviation from this criteria may be considered, but under no condition shall excavation be permitted into the levee. See Paragraph 5 for requirements for crossing over a levee on grade.

b. Flap (automatic) gates are not required at the outfall of the discharge lines.

## **15. Electrical and Telephone Criteria for Overhead Wire Crossings.**

a. The local sponsor may require directional boring under the levee as opposed to an overhead crossing.

b. No structure (poles or otherwise) shall be located closer than 15 feet from the toe of any levee.

c. No structure (poles or otherwise) shall be located closer than 15 feet from the top of any channel slope.

d. Provide a minimum vertical clearance of 28 feet between the crown of the levee and the low wire at the low point of the wire at the levee crossing computed under the most adverse conditions (temperature, wind, load, etc.).

e. Provide a minimum vertical clearance of 28 feet between the natural ground and the low wire at the low point of the sag in the area of the project channel, or three feet above the project design water surface level, whichever is higher. (Check Electrical Code for minimum clearance of high voltage lines.)

f. Locate guy wires and anchors in such a manner that they do not interfere with the operation and/or maintenance of the channel, levees, or related structures. No anchors may be placed on the levee.

#### **16. Low Dams or Diversion of Flows.**

a. Submit plans, hydraulic and structural computations, and specifications for low dams or other obstructions for review and comments prior to the construction of any type dam structure in a project area. These plans will be reviewed to determine if adverse hydraulic or structural effects would occur within the project as a result of the proposed construction. Prior to an extensive engineering study for any type of water barrier in a project, the CESWF and the local sponsor will review the concept plan, proposed location, and purpose.

b. Diversion of flows into or out of a project area shall be reviewed as to possible adverse hydraulic or structural effects.

#### **17. Process for Abandoning Existing Pipelines.**

a. Requests to abandon existing buried pipelines within a project shall be submitted in writing to CESWF and the local sponsor. No buried line within a floodway may be abandoned without the review and approval of CESWF and the local sponsor.

b. As a minimum, the portion of the abandoned pipeline under a levee shall be completely filled with concrete or grout to prevent seepage through the abandoned line during flood conditions.

c. Abandoned buried pipelines that are located on floodway property, but are not located under a levee shall be plugged at each end with concrete or grout.

d. Any structures associated with abandoned buried pipelines, for example, manholes, shall be removed and the resulting hole filled and compacted in accordance with the provisions in paragraph 4j.

e. Above-ground abandoned pipelines shall be removed from floodway right-of-way, including any associated structures.

**18. Construction of Recreation Facilities.** Submit plans to the CESWF for review and approval on any proposed recreation type facilities to be constructed in an existing or approved Federal project area. Each plan shall include hydraulic computations and will be reviewed for individual and cumulative effects to determine if the proposed construction would produce adverse effects on an existing or approved project area. If adverse effects on the carrying capacity of the project are determined, the project will be disapproved. The local sponsor may construct minor recreation improvements as needed so long as final as-built plans are provided to CESWF.

#### **19. Planting of Trees Within a Floodway.**

a. The purpose of a Federal flood protection project is to carry floodwater through an urban area. Anything in the floodway that restricts flow or can catch floating debris will reduce the carrying capacity below its design limits and will not be allowed. The local sponsor is directed to remove all trees on the

levees or adjacent to the channel and also as many other trees and obstructions within the floodway as reasonably possible.

b. Planting of trees on the levees will not be allowed nor approved.

c. Planting of additional trees within existing flood protection projects or adjacent to channels is not encouraged and will be evaluated only on a case-by-case basis. Only trees with deep-type root systems and high canopies may be planted in selected areas of existing flood protection projects. The plantings shall be a minimum of 50 feet away from the toe of the levee or the top of the channel bank. Trees may be placed no closer than at an average spacing of 100 feet, center-to-center. Prune trees to permit mowing immediately adjacent with tractor type mowers. No bush or vine type plants will be permitted. Minimum application of ground cover plants for slope protection will be allowed, subject to approval by the local sponsor.

d. Submit a coordinated planting plan with hydraulic computations for review and approval. This plan must also show all existing trees within 1000 feet of the proposed new trees.

CESWF-EC-DG

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RECORD OF DECISION  
REGIONAL ENVIRONMENTAL IMPACT STATEMENT  
TRINITY RIVER AND TRIBUTARIES

**I. Introduction**

Since its early history, the U.S. Army Corps of Engineers has played an important role in the development of the nation's water resources. Originally, this involved construction of harbor fortifications and coastal defenses. Later duties included the improvement of waterways to provide avenues of commerce and reduce flood hazards. An important part of its mission today is the protection of the nation's waterways through the administration of the Regulatory Program. The Corps is directed by Congress under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) to regulate all work or structures in or affecting the course, condition, or capacity of navigable waters of the United States. Section 9 (33 USC 401) directs the Corps to regulate the construction of any dam or dike across a navigable water of the United States. The intent of these laws is to protect the navigable capacity of waters important to interstate commerce.

Additionally, the Corps is directed by Congress under Section 404 of the Clean Water Act (33 USC 1344) to regulate the discharge of dredged and fill material into all waters of the United States, including adjacent wetlands. The intent of this law is to protect the nation's waters from the indiscriminate discharge of material capable of causing pollution, and to restore and maintain their chemical, physical, and biological integrity. Because the District Engineer's decision to issue or deny a permit under these laws is a significant Federal Action, various other statutes, principally Public Law 91-190 (the National Environmental Policy Act, or NEPA) come into play. Among other things, NEPA requires the consideration of the direct, indirect, and cumulative impacts of an action (40 CFR 1508.25(C)).

Late in 1984 and early in 1985, it became apparent that numerous unrelated development projects were being proposed along the Trinity River and its tributaries in Dallas, Denton, and Tarrant Counties, Texas. Most involved modification of the river channel and/or flood plain in some form or another, and most required a Corps of Engineers permit as a result. Because, individually or cumulatively, these projects were felt to have the potential to compromise the existing protection afforded to flood plain residents, because of perceived impacts to wetlands and other natural resources, and because of competing public demands for other uses of the river channel and flood plain, the District Engineer determined that it was necessary to develop a regional perspective in order to properly evaluate the impacts of individual permit decisions in accordance with the spirit and intent of NEPA and other applicable laws.

The Draft Regional Environmental Impact Statement (EIS), published in May 1986, analyzed a number of scenarios which were specifically designed to identify possible, significant cumulative impacts associated with different permitting strategies for the Trinity River flood plain. In addition to developing a baseline condition, it examined three groups of conditions based on a) maximizing environmental quality, b) ultimate implementation of the

Federal Emergency Management Agency's (FEMA) minimum criteria for the flood insurance program, and c) maximizing economic development.

The results of the Draft Regional EIS indicated strongly that there are potential cumulative impacts associated with individual flood plain development projects which are both measurable and significant. Additionally, the Draft Regional EIS indicated that the permitting approach adopted by the Corps of Engineers had the potential to have significantly different impacts on a number of regional parameters, especially flood hazards. Even though the analyses were not complete, and the public comment on the Draft Regional EIS indicated that there was much work to follow, the implications to the ongoing Regulatory Program could not be overlooked. In response to this, the Corps formulated a set of interim criteria to be in effect until the Record of Decision was rendered.

Many of the comments received on the Draft Regional EIS indicated that the slate of alternatives analyzed did not represent a realistic approach to regulatory strategies. In many cases, the predicted results were publicly unacceptable. Two important examples include the overtopping of the Dallas Floodway levees under two of the scenarios, and a substantial downstream shift in the Dissolved Oxygen "sag" resulting in noncompliance with State Water Quality Standards in the reach below the Trinidad gage. After careful analysis of the public and agency input, several new scenarios were formulated for analysis in the Final Regional EIS.

In addition to updating the baseline, three scenarios, representing the same three broad categories that had been previously addressed, were developed. Many people suggested that the Maximum Development scenarios analyzed in the Draft Regional EIS were too extreme, either because they conflicted with an ongoing project, or because levees were physically impractical in some portions of the flood plain. In response to this criticism, we agreed to replace them with a "Composite Future" scenario. Each city was tasked to provide the North Central Texas Council of Governments (NCTCOG) a delineation of the "most likely" limits of maximum encroachment within their jurisdiction. NCTCOG compiled each city's individual prediction and presented the resultant set of maps to local staffs and local elected officials before providing them to the Corps for analysis.

The Modified Floodway scenario of the Final Regional EIS replaced the floodway-based scenarios of the Draft Regional EIS as a representative compromise between maximum (realistic) development and maximum (realistic) environmental quality. In this scenario, the Corps defined the geographic limits of a drainageway incorporating the FEMA concept with significant technical variations. For the third scenario, the Corps revised and represented a Maximum Environmental Quality scenario, hydraulically identical to the revised baseline because it incorporated no additional flood plain projects except water quality, recreation, and wildlife enhancements. Of the scenarios, or alternatives, examined in the Final Regional EIS, this is the environmentally preferred alternative.

The extensive coordination and public involvement characteristic of the Regional EIS process continued during the comment period on the Final Regional EIS, which extended from its release on October 22, 1987, through January 31, 1988. During this period, I held a public meeting at Lamar High School at

which eleven people submitted statements. My staff attended in excess of twenty meetings with local government staffs, public agencies, and citizen groups. In addition, sixty-six written comments on the Final Regional EIS were received.

## **II. Discussion of Issues and Factors**

Most of the formal public comment and discussion with local governments centered on three general issues: the appropriate level of flood protection (100-year vs. SPF), the level of accuracy of the hydraulic and hydrologic analyses displayed in the Regional EIS, and the issue of equity as it pertains to governmental regulation. "Benefits" and "Costs" of an action, whether it be a proposed project or a proposed regulation, do not always occur to the same group of people, let alone in the same order of magnitude. The definition of the "public interest" which is at the heart of the Regional EIS calls for an assessment of the tradeoffs inherent between public demands for enhanced environmental quality in the river corridor and for its use for needed public facilities, and economic development and the rights of private landowners.

A major consensus achieved through the review of the Final Regional EIS is that additional regional increases in flood hazards for either the 100-year or Standard Project Flood are undesirable, and that the thrust of flood plain management, in the short term, should be to stabilize the flood hazard at existing levels through regulation. Future efforts on the part of both the Corps and local organizations may be required to reduce flood hazard over the long term.

The Regional EIS is probably the most comprehensive such study done in the United States. It has highlighted the need for planning for the region and cooperation among the governmental entities along the Trinity River corridor to achieve quality development. The document was developed for the sole purpose of establishing a permitting strategy for the Trinity River and its tributaries. It does not contain a technical baseline that will remain current over time and is not to be used as a design document. Design decisions requiring water surface predictions based on critical storm centerings, and which are sensitive to valley storage computations, must be based on detailed site-specific engineering analyses. Other site-specific public or private flood control management decisions should likewise be based on current technical analyses. Further, flood insurance data must be obtained from the FEMA and not from the Regional EIS.

Neither the Regional EIS nor this Record of Decision encroaches upon the responsibility of design engineers or the authority of local governments. The Regional EIS, its public review, and this Record of Decision serve only to establish and document the "best overall public interest" as it applies to the Trinity River and its tributaries. It remains the responsibility of design engineers to perform competent work in accordance with professional design practices. Permit applicants which proposed flood plain modifications and/or site-specific flood control structures will need to satisfy review agencies as to the reasonableness of design assumptions.

Throughout the development of this Record of Decision, the Corps has worked closely with the NCTCOG to insure consistency with their COMMON VISION program. The criteria listed below for the West Fork, Elm Fork, and Main Stem are consistent with the Statement of Principles for Common Permit Criteria sub-

mitted by the Steering Committee of local government officials. Because of the massiveness of this undertaking and the importance of its impact on future growth, the comments from the cities and other governmental entities have been carefully considered.

### III. Decision

Based on my consideration of the data developed and presented in both the Draft and Final Regional EIS's and my careful consideration of all public input, I have determined that, for the purposes of the Regional EIS study area, my Regulatory Program will be henceforth based on the following criteria. The baseline to be used in analyzing permit applications will be the most current hydraulic and hydrologic model of the specific site in question. The burden of proof of compliance with these criteria rests with the permit applicant. Variance from the criteria would be made only if public interest factors not accounted for in the Regional EIS overwhelmingly indicate that the "best overall public interest" is served by allowing such variance.

A. Hydraulic Impacts--Projects within the SPF Flood Plain of the Elm Fork, West Fork, and Main Stem. The following maximum allowable hydraulic impacts will be satisfied, using reasonable judgment based on the degree of accuracy of the evaluation, and using cross sections and land elevations which are representative of the reaches under consideration:

1. No rise in the 100-year or SPF elevation for the proposed condition will be allowed.
2. The maximum allowable loss in storage capacity for 100-year and SPF discharges will be 0% and 5% respectively.
3. Alterations of the flood plain may not create or increase an erosive water velocity on-or off-site.
4. The flood plain may be altered only to the extent permitted by equal conveyance reduction on both sides of the channel.

B. Hydraulic Impacts--Tributary Projects. For tributaries with drainage areas less than 10 square miles, valley storage reductions of up to 15% and 20% for the 100-year and Standard Project Floods, respectively, will be allowed. For tributaries with intermediately-sized drainage areas (10 square miles to 100 square miles), the maximum valley storage reduction allowed will fall between 0% and 15% for the 100-year flood and 5% and 20% for the Standard project Flood. Increases in water surface elevations for the 100-year flood will be limited to approximately zero feet. Increases in water surface elevations for the Standard Project Flood will be limited to those which do not cause significant additional flooding or damage to others. Projects involving tributary streams with drainage areas in excess of 100 square miles will be required to meet the same criteria as main stem projects (see "A" above).

C. Cumulative Impacts. The upstream, adjacent, and downstream effects of the applicant's proposal will be considered. The proposal will be reviewed on the assumption that adjacent projects will be allowed to have an equitable chance to be built, such that the cumulative impacts of both will not exceed the common criteria.

D. Design Level of Flood Protection. The engineering analysis will include the effects of the applicant's proposal on the 100-year and Standard

Project Floods and should demonstrate meeting FEMA, Texas Water Commission, and local criteria, as well as Corps, for both flood events.

1. For levees protecting urban development, the minimum design criterion for the top of levee is the SPF plus 4.0, unless a relief system can be designed which will prevent catastrophic failure of the levee system.

2. For fills, the minimum design criterion is the 100-year elevation, see above, plus one foot.

E. Borrow Areas. The excavation of "borrow" areas to elevations lower than the bottom elevation of the stream is generally hydrologically undesirable. The volume of such excavations, above the elevation to which the area can be kept drained, can be considered in hydrologic storage computations.

F. Preservation of Adjacent Project Storage. The applicant will be required to respect the valley storage provided by adjacent projects by ensuring that their hydraulic connection to the river is maintained. If the project blocks the hydraulic connection of the adjacent project, then the applicant will be required to provide additional valley storage to offset the loss caused by the blockage of the hydraulic connection.

G. Special Aquatic Sites. Value-for-value replacement of special aquatic sites (i.e. wetlands, pool and riffle complexes, mud flats, etc.) impacted by non-water dependent proposals will be required.

These criteria will be used by the Corps for the express purpose of evaluating new permit applications received subsequent to the effective date. They will not be used to reevaluate any flood plain project already constructed or permitted. They apply to permit applications from public agencies as well as private sector applications. In addition to the criteria discussed above, the following guidelines will be used by my staff in evaluating permit applications:

A. Runoff. Site drainage systems should minimize potential erosion and sedimentation problems both on site and in receiving water bodies.

B. Habitat Mitigation. A standardized, habitat-based evaluation method should be used to evaluate the impacts of the applicant's proposal to fish and wildlife resources. Guidelines for the quality and quantity of mitigation are as follows:

1. Category 2 resources--habitat of high value which is scarce, or is becoming scarce in the ecoregion--no net loss of habitat value. Category 2 resources in the study area include vegetated shallows, riffle and pool complexes, and riparian forests, as well as wetlands (see above for mitigation of wetlands). A buffer strip of natural vegetation 100' feet wide on each side of the channel for main area projects, and 50' feet for tributaries, should be maintained.

2. Category 3 resources--habitat of medium-to-high value that is relatively abundant in the ecoregion--no net loss of habitat value while minimizing the loss of the habitat type. (This means to reduce the loss of the habitat and compensate the remainder of loss of habitat value by creation or improvement of other Category 2 or 3 resources.) Category 3 resources in the study area include deep water, native rangeland, upland forests, and upland

shrubland.

3. Category 4 resources--habitat of low-to-medium value--mitigation should be to minimize the loss of habitat value, which can be accomplished by avoidance or improving other habitat types. Category 4 resources in the study area include cropland and improved pasture.

C. Cultural Resources. Cultural resources, including prehistoric and historic sites, will be identified and evaluated according to National Register of Historic Placer Criteria. Identification procedures may involve literature review, pedestrian survey, and excavation to identify buried cultural materials. Sites which are eligible for inclusion in the National Register of Historic Places will be treated by measures which range from avoidance, to preservation in place, to mitigation through excavation.

D. Other Regional Needs and Plans. Consideration will be given when evaluating permit applications of the proposal's impact on regional facilities which have been identified as important through the Regional EIS process. These include, but are not limited to, a linear hike/bike system linking large flood plain parks throughout the Metroplex, the Trinity Tollway, and sites for regional stormwater detention basins. (Specific locations and plans for these facilities will continue to evolve through coordination with NCTCOG and local governments.) Applicants will be urged to design projects which do not preclude future implementation of these regional assets.

It is my conclusion that the criteria and guidelines set forth above represent the best available definition of the "overall public interest," taking into account the rights of individual landowners and the direct, indirect, and cumulative impacts of individual actions under by purview. Further, I conclude that these policies represent all the practical means known to me to avoid or minimize environmental harm within that framework. This document will therefore provide the specific framework within which we will operate the Fort Worth District's Regulatory Program within the Regional EIS study area.

*/Signed/*

JOHN E. SCHAUFELBERGER  
Colonel, Corps of Engineers  
District Engineer

Date: *April 29, 1988*



DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS  
441 G STREET NW  
WASHINGTON, D.C. 20314-1000

CECW-PB

OCT 23 2006

MEMORANDUM FOR MAJOR SUBORDINATE COMMANDS

SUBJECT: Policy and Procedural Guidance for the Approval of Modification and Alteration of Corps of Engineer Projects

1. REFERENCES:

- a. ER 1165-2-119, dated 20 September 1982, Modifications to Completed Projects
- b. 33 CFR 208.10, Local flood protection works; maintenance and operation of structures and facilities
- c. 33 USC 408, Taking possession of, use of, or injury to harbor and river improvements
- d. 33 CFR 320.4, General policies for evaluating permit applications
- e. Section 404 of the Clean Water Act
- f. Section 10 of the River and Harbors Act of 1899

2. PURPOSE. Recent events have demonstrated the need to provide clarification and additional guidance on the policy and procedures for dealing with proposals to modify or alter completed Corps of Engineers projects that are either locally or federally maintained. Often requests for modifications to Corps projects come up in the context of Section 404 permitting actions or for modifications to existing Corps projects for the purposes of O&M. This memorandum addresses the use of the appropriate authority and the proper level of approval for such proposals.

3. BACKGROUND.

a. ER 1165-2-119 provides policy and guidance on the modification of completed Corps of Engineers projects, and describes the specific circumstances under which modifications can be approved and accomplished. In general, proposed significant modification of a completed project, involving new Federal construction or real estate acquisition, and any proposed modification that would make the project serve new purposes, or increase the scope of services to authorized purposes beyond that intended at the time of construction, or to extend services to new beneficiaries (areas), requires authorization by Congress. There may be instances where reporting officers find that proposed significant changes to a completed project may be desirable, in which case investigations may be undertaken to document the need for and the feasibility of such project modifications. To the extent practicable, such changes should be accomplished under existing authorities. However, the circumstances under which such modifications can be approved and made are limited, as discussed in the ER, and are briefly summarized below.

b. For projects constructed, operated and maintained by the Corps, the Corps may, as part of its operations and maintenance efforts, make reasonable changes and additions needed to

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SUBJECT: Policy and Procedural Guidance for the Approval of Modification and Alteration of Corps of Engineer Projects

properly operate the project or minimize maintenance. In addition, multiple purpose projects operated and maintained by the Corps may be modified within existing authorities for dam safety assurance, changes in water control plans, addition of water supply, changes to meet water quality needs, and recreation and fish and wildlife enhancement, as discussed in the ER. The Chief of Engineers also has limited discretion to modify navigation projects. For Corps-constructed projects operated and maintained by local interests, any proposed Federal work at these projects usually requires congressional authorization, with the exception of work required to correct a design deficiency.

c. Guidance on the responsibilities for the operation and maintenance of local protection projects is found in 33 CFR 208.10. This regulation describes local sponsors' responsibilities for operating and maintaining the structural soundness and functionality of the project in order to assure that the project meets its authorized purposes. Specifically, 33 CFR 208.10 a (5) requires that "no improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer" that such changes will not adversely affect the functioning of the protective facilities. The types of changes that can be considered and approved by a District Engineer under 33 CFR 208.10 are relatively minor, low impact modifications, such as pipes or pipelines proposed to pass over or through a Federal work, or a road or similar type of infrastructure improvement proposed to pass over a Federal levee. Such minor proposed modifications are considered part of a District Engineer's responsibilities related to normal O&M of such facilities. Any proposed modification of a Federal work, such as a levee or channel, which would involve significant changes to the authorized project's scope, project purpose, or functioning, cannot be approved by the District Engineer, but instead must be forwarded through the Division Commander for the approval of the Chief of Engineers, as explained hereinafter. That is, any proposed change to a Federal work exceeding the level of ordinary District O&M responsibilities for a project must be sent through the Division Commander to the Chief of Engineers for approval, as discussed in the following paragraphs.

d. Any proposed modification to an existing Corps projects (either federally or locally maintained) that go beyond those modifications required for normal O&M require approval under 33 USC 408. 33 USC 408 states that there shall be no temporary or permanent alteration, occupation or use of any public works including but not limited to levees, sea walls, bulkheads, jetties and dikes for any purpose without the permission of the Secretary of the Army. Under the terms of 33 USC 408, any proposed modification requires a determination by the Secretary that such proposed alteration or permanent occupation or use of a Federal project is not injurious to the public interest and will not impair the usefulness of such work. The authority to make this determination and to approve modifications to Federal works under 33 USC 408 has been delegated to the Chief of Engineers.

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#### 4. POLICY.

Any significant alteration or modification to either a locally or federally maintained Corps of Engineers project must be approved by the Chief of Engineers under 33 USC 408 unless covered by ER 1165-2-119. Modifications to a Corps projects beyond those necessary to properly operate the project or to minimize maintenance costs as well as any significant alteration or modification requested by any non-Federal interest for their own benefit also requires the Chief's approval under 33 USC 408.

#### 5. PROCEDURES.

a. The following information will be provided with any request for the approval of significant modifications or alterations to a locally or federally maintained Corps project requiring the Chief of Engineers approval under 33 USC 408.

1. A written request by the non-Federal interests for approval of the project modification/alteration.
2. A physical and functional description of the existing project
3. A detailed description of the proposed modification
4. The purpose/need for the modification
5. A description of any related, ongoing Corps studies/efforts in the watershed
6. A Public Interest Determination
7. Appropriate NEPA documentation
8. Any Administrative Record
9. A discussion of indirect effects
10. A discussion of E.O. 11988 Considerations
11. Technical Analysis
  - Technical adequacy of the design
  - Changes in water surface profiles and flow distribution
  - Assessment of anticipated local and system-wide resultant impacts, i.e., impacts on system integrity
  - Upstream and downstream impacts of the proposed alterations, including potential impacts to existing floodplain management and water control management plans of Federal projects within the basin
  - A discussion of residual risk

b. If there is an associated Section 404/10 permit action, the required public interest and technical evaluations under 33 USC 408 can be done concurrently with that action. Upon completion of the public interest determination and of the technical analyses regarding the impact of the proposed modification on the usefulness of the project, the District Engineer will make a recommendation (with supporting documentation) through the Division Commander to

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the Chief of Engineers (Attn: Appropriate RIT) for his consideration and approval under 33 USC 408. The District Engineer will make the final Section 404/10 permit decisions following the Chief of Engineers decision under 33 USC 408. A minimum of 30 days must be allowed for HQUSACE review.

c. For locally operated and maintained Corps projects, the operations and maintenance for any approved project modifications or alterations will be the responsibility of the non-Federal sponsor and the Project Cooperation Agreement or other appropriate document must be updated to address non-Federal sponsor responsibilities for the approved modifications.

6. If the desired modifications cannot be suitably pursued or approved under any of the preceding approaches, additional congressional authorization may be required. Section 216 of the Flood Control Act of 1970 is the appropriate authority to use to consider such modifications.

7. Consideration will be given to further delegation of the approval authority to a lower level as we gain more experience with the types of changes that are proposed for approval under 33 USC 408.

FOR THE COMMANDER:

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

**TRINITY PARKWAY PROJECT MODIFICATIONS TO  
DALLAS FLOODWAY, TEXAS  
SECTION 408 GUIDELINES  
19 December 2008**

1. **PURPOSE:** The purpose of this document is to provide guidelines to facilitate the review and required approval by the Chief of Engineers under 33 USC 408 (Section 408) of proposed modifications to the existing Dallas Floodway, Texas project (authorized by the River and Harbors Act of 1945) that go beyond those modifications required for normal Operation and Maintenance (O&M). These guidelines are specific to the Trinity Parkway and not intended for use on other proposed modifications to the existing Dallas Floodway, Texas project. Separate Section 408 guidelines will be established for any other local projects that modify the existing Dallas Floodway. These guidelines do not apply to planning, design, and construction activities associated with the Dallas Floodway, Texas project authorized by section 5141 of the Water Resources Development Act (WRDA) of 2007 (P.L. 110-114).

2. **References:**

a. CECW-PB Memorandum dated 23 October 2006, Policy and Procedural Guidance for the Approval of Modifications and Alterations of Corps of Engineers Projects.

b. Supplement No. 1 with Section 408 Checklist to the CECW-PB memo referenced above ER 1105-2-101, 3 January 2008, Planning - Risk Analysis for Flood Damage Reduction Studies.

c. CECW-PB Memorandum dated 17 November 2008, Clarification Guidance on the Policy and Procedural Guidance for the Approval of Modifications and Alterations of Corps of Engineers Projects.

d. CECW-HS Memorandum dated January 23, 2008, Subject: Guidance for the Prioritization of Fiscal Year (FY 2008) Levee Safety Program Inspection Funds.

e. EC 1105-2-410, dated 22 Aug 2008, Water Resources Policies and Authorities: Review of Decision Documents.

f. Draft CEMP-SWD, Implementation Guidance for Section 5141 of the Water Resources Development Act of 2007 (WRDA 2007) – Dallas Floodway, Dallas, Texas.

g. Record of Decision dated 29 April, 1988, for Regional Environmental Impact Statement (EIS), Trinity River and Tributaries Trinity River Corridor Development Certificate Manual, Third Edition, Sept 2002.

h. Trinity River Corridor Development Certificate Manual, Third Edition, Sept 2002.

i. 44 CFR PART 65, Identification and Mapping of Special Hazard Areas, 1 Oct 1999 edition.

j. ER 1110-2-1150, 31 Aug 1999, Engineering and Design for Civil Works Projects

3. **DEFINITION OF SECTION 408 PROJECT:** The modifications to the existing Dallas Floodway, Texas project (authorized by the River and Harbors Act of 1945) that will be governed by these guidelines focus on modifications identified by the City of Dallas and North Texas Transit Authority (NTTA) for the new Trinity Parkway (Section 408 project). Features of the Trinity Parkway to be included in the Section 408 project review include, but are not limited to, the roadway alignment, parkway design (areas of fill, floodwalls, diaphragm walls in levees), access ramps, excavation/borrow pits, landscaping on road fill, mitigation lands, stormwater wetlands, lighting, and toll plazas). The Section 408 project review shall not include features included in the Dallas Floodway, Texas project authorized by section 5141 of WRDA 2007 (P.L. 110-114).

4. **BACKGROUND:** The Sponsor (City of Dallas, NTTA, and Federal Highways Administration (FHWA)) for the Trinity Parkway is solely responsible for the technical and environmental completeness, design, and justification for the Trinity Parkway. The technical and environmental analysis and design shall be in compliance with all applicable authorization related decision documents such as the 1988 Trinity River Record of Decision (ROD), Trinity River Corridor Development Certificate, and other state and Federal requirements, including the Clean Water Act and the Rivers and Harbors Act. Under the terms of 33 USC 408, any proposed modification to a Federal project requires a determination that such proposed alteration or permanent occupation or use of a Federal project is not injurious to the public interest and will not impair the usefulness of such work. The authority to make this determination and to approve modifications to Federal projects under 33 USC 408 has been delegated to the Chief of Engineers. A summary of the items necessary to expedite and reach a decision on the Section 408 project and a permit decision under the authority of Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 is contained in the attached checklist (Encl 1), and described in these guidelines.

5. **RELATIONSHIP WITH DALLAS FLOODWAY (Section 5141, WRDA 2007):** It is important to note that Trinity Parkway modification and the Section 5141 Dallas Floodway project are separate and distinct actions. The Trinity Parkway modification is part of the baseline conditions from which the section 5141 project will be evaluated, and will be treated as part of the without project conditions for assessing the technical soundness and environmental acceptability of the section 5141 Dallas Floodway project. If the Trinity Parkway is not implemented, additional guidance and coordination with the U.S. Army Corps of Engineers Headquarters (HQUSACE) will need to occur prior to approval of the Section 5141 Dallas Floodway project.

6. **COORDINATION WITH OTHER FEDERAL AGENCIES.** The development of the design proposal for the Section 408 approval will require coordination with multiple Federal,

State, and local agencies. As lead federal agency, FHWA will be responsible for preparing the NEPA documentation for the Trinity Parkway including an Environmental Impact Statement (EIS) and the public notification and all appropriate agency and public coordination. The U.S. Army Corps of Engineers (Corps) will act as a cooperating agency and will assist FHWA by providing relevant information and analysis. Designs must meet Federal Emergency Management Agency (FEMA) flood plain management requirements for development within the 100-year flood plain. The goal is to develop close partnerships between the Federal agencies to ensure there is a thorough understanding of roles and responsibilities required to meet the city of Dallas' schedule for the Chief of Engineer's review of the Trinity Parkway. Major milestones will be established and agreed to by all interested parties including establishment of key checkpoints to assure all partners are of committed to the project schedule and will be used to closely coordinate preparation of the EIS.

7. **SPONSOR SUBMITTALS:** Since it is impossible to anticipate every scenario, vertical teaming is a must when there is doubt as to the appropriate course of action related to the application of 33 USC 408, the application of a risk and uncertainty analysis or any other associated issues. The Southwestern Division (SWD) Regional Integration Team (RIT) will be the point of contact in HQUSACE for coordinating issues to ensure that the level of analyses is in accordance with policy. The Section 408 Report will be transmitted through SWD and HQUSACE to evaluate if the proposed alterations or permanent occupation or use of the Federal project is not injurious to the public interest and will not impair the usefulness of the Corps/Federal project. The level of detail will be in accordance with ER 1110-2-1150, Engineering and Design for Civil Works Projects, and other Corps regulations, and as augmented herein. The required analyses by the Sponsor for determining the technical adequacy of the Trinity Parkway Project may be accomplished through development of multiple documents. However, the final determination by the Chief of Engineers will not be provided until the final Section 408 Report is developed by the Fort Worth District (SWF), and submitted for approval. The SWF will be responsible for ensuring the final design incorporates all provisions included in the Section 408 approval made by the Chief of Engineers. Milestone dates must be met to avoid delays and other impacts in review of design submittals. If it is anticipated that milestones cannot be met, early notification by the Sponsor to the Corps is required to minimize impacts to the schedule.

a. **Sponsor Section 408 Design Submittal Package.** The Sponsor's submittal must demonstrate the Trinity Parkway (Section 408 project) will not impair the function of the existing Dallas Floodway or reduce the level of protection of the authorized project. This information will be used by SWF to develop the Section 408 Report supporting the final decision for the Chief of Engineers. As such, the Section 408 Submittal by the Sponsor shall include the following:

(1) Roadway Design. The submittal shall include the final baseline alignment that delineates project limits and construction access. All existing conditions should be shown with proposed profiles and cross sections. Impacts to existing structures, bridges, utilities, and property requirements shall be documented. The baseline alignment shall delineate all access ramps associated with the Trinity Parkway (Section 408 project).

(2) Hydrology and Hydraulic (H&H) Design. Failure to meet hydraulic neutrality, as defined by references 2g and 2h, amounts to a “show stopper” for any alternative for modification of the existing Dallas Floodway (Section 408 project). As such, this submittal shall include the 100% level H&H of detail and design to establish hydraulic neutrality through the use of final HEC-RAS model development. The model shall be fully geo-referenced. Risk and uncertainty analysis will be applied to H&H at each level of protection to include the 100 year event, Standard Project Flood (SPF), overtopping loading conditions, and potential impacts to interior drainage. For loading conditions where flood waters exceed the level of protection, the analysis shall include a breach analysis to assess impacts within the system that include life safety and economics risks per references 2a and 2b. Also, potential impacts to levee certification and the floodplain will be addressed in accordance with 44 CFR 65 per reference 2h. Excavations in the floodway expected to offset any losses to floodway conveyance or valley storage will require sediment transport modeling at this stage. Model comparisons for steady state flow and un-steady state flow or other alternative modeling techniques will also be required to evaluate the impacts to valley storage and conveyance and to validate model results. Complete hydraulic modeling with the initial submittal will allow early resolution and prevent wasted design effort if hydraulic neutrality cannot be shown or accomplished. Hydraulic neutrality will be defined in accordance references 2g and 2h as noted below:

*“Hydraulic Impacts--Projects within the SPF Flood Plain of the Elm Fork, West Fork, and Main Stem. The following maximum allowable hydraulic impacts will be satisfied, using reasonable judgment based on the degree of accuracy of the evaluation, and using cross sections and land elevations which are representative of the reaches under consideration:*

- 1. No rise in the 100-year or SPF elevation for the proposed condition will be allowed.*
- 2. The maximum allowable loss in storage capacity for 100-year and SPF discharges will be 0% and 5% respectively.*
- 3. Alterations of the flood plain may not create or increase an erosive water velocity on- or off-site.*
- 4. The flood plain may be altered only to the extent permitted by equal conveyance reduction on both sides of the channel.”*

(3) Geotechnical Analysis. The submittal shall include geotechnical analysis and designs at the 80% to 90% level of detail. This submittal shall include a majority of the drilling, all testing, and all geotechnical design recommendations for foundations, pavements, compaction, fill materials, borrow, calculations for slope stability, consolidation, settlement, bearing capacity and seepage analysis. The geotechnical design and analysis shall use Corps approved models or other geotechnical analytical tools in order to accurately demonstrate the Trinity Parkway (Section 408 project) will not impact levee stability, increase or cause under seepage or through seepage as a result of constructed features. Risk and uncertainty will be applied using deterministic procedures are appropriate for demonstrating structural integrity under the full range of loading conditions.

(4) Preliminary Design / Analysis. The submittal shall include the preliminary design and analysis (equivalent to a 35% level of detail) for all remaining features of the Trinity Parkway. This includes a layout for the borrow/disposal plan, excavation plan, floodwall and all structural designs, and landscaping.

(5) Environmental Analysis. The submittal shall include the Supplemental Draft EIS prepared by the FHWA. However, if the Supplemental Draft EIS does not meet the requirements of ER 200-2-2 (Procedures for Implementing NEPA) or does not contain the information necessary to reach a Section 404/10 permit decision and Section 408 decision, additional environmental analysis must be completed by the Sponsor to fully document the environmental acceptability of the proposed Trinity Parkway.

(6) Construction Phasing. The submittal shall provide details on the construction phasing for all Trinity Parkway (Section 408 project) features. The Storm Water Pollution Prevention Plans and Care of Water during Construction shall also be laid out.

(7) Operation and Maintenance (O&M). The submittal is to include documentation of changes in O&M requirements to ensure the integrity of the Dallas Floodway is maintained throughout the full range of anticipated functions and loadings.

(8) Change Management. Detail the process that will be used during design and construction to manage how changes to the project configuration will be incorporated to ensure that the project technical requirements continue to be met. The Corps will review and approve, where appropriate, all major modifications to the Section 408 project during construction and during the useful life of the constructed project.

(9) Real Estate. Discuss real estate ownership needed by the sponsor, including staging and access, to support the construction and operation and maintenance of the Trinity Parkway. Include maps depicting the real estate property boundaries and the estates owned by the sponsor. This information will be used to assess any impacts to the land requirements for the Dallas Floodway Project and to address any competing requirements between the projects.

b. **Updated Sponsor Section 408 Design Submittal Package.** The purpose of this submittal is to document changes in the Section 408 project resulting from previous Corps review and comment, and to provide increased clarity on the analysis of the Section 408 project features. After the Sponsor has incorporated comments and additional details of the project are developed this will comprise the updated submittal. The second submittal package is to include:

(1) H&H Analysis and Trinity Parkway Roadway Design. Any changes in the H&H analysis and roadway design resulting from response to Corps review or other actions must be highlighted. For any changes in the baseline alignment, the submittal shall document hydraulic neutrality to the same level of detail as required in the Initial 408 Submittal. The design details for all channel improvements (channel widths, slope configurations, etc.) shall be included in this submittal.

(2) Geotechnical Analysis. All field investigations, analysis, and design shall be completed for all features associated with the Trinity Parkway. Additional field investigations will fill in data/information gaps that were indicated at the initial submission, and would also include changes in the project design (for example - a structure is shifted from its original location, a structure is added, H&H requirements necessitate widening a channel, etc).

(3) Structural Analysis. Structural analysis and designs for reinforced concrete diaphragm walls and other structural features shall be at the 65% level of detail. Risk and uncertainty will be applied using deterministic procedures that are appropriate for demonstrating structural integrity under the full range of loading conditions.

(4) Real Estate Analysis. The submittal shall include information on permanent and temporary easement requirements for the Trinity Parkway and associated features.

(5) Landscaping. All landscaping, turfing, and erosion control measures shall be specified at the 65% level of detail.

(6) Construction Phasing. The submittal should provide details on the construction phasing for all Trinity Parkway features. The Storm Water Pollution Prevention Plans and Care of Water during Construction should also be laid out.

(7) Operation and Maintenance. The submittal is to include documentation of changes in operation and maintenance requirements to ensure the integrity of the Dallas Floodway is required.

(8) Environmental Analysis. The Corps will rely on the final EIS prepared by the FHWA to meet Corps requirements. However, if the final EIS does not meet the requirements of ER 200-2-2 or provide information necessary to reach a Section 404/10 permit decision and Section 408 decision, additional environmental and technical analysis will need to be conducted by the roadway partners to fully document the environmental acceptability of the proposed Trinity Parkway.

c. **Initial Plans and Specifications (P&S)**. This submittal shall include the contract package documenting all details for bidability and constructability review. The submittal shall include final design analysis (computations, assumptions for the detailed design, real estate requirements, etc.) for all features of the Trinity Parkway. The submittal shall also include technical specification tailored for the Trinity Parkway.

d. **Final P&S**. This submittal will include the final design with full Plans & Specifications, which incorporates changes from all review comments. This submittal will be the package to be advertised for construction. A final report with all design analysis, assumptions, and calculations is to be provided documenting full compliance with Corps review.

8. **Section 408 REPORT**. A Section 408 Report will be developed by SWF to be used as the decision document that supports the Chief of Engineers determination of the adequacy of the modification to the existing authorized Dallas Floodway, and the Project Partnership Agreement

(PPA). The Trinity Parkway (Section 408 project) will be evaluated and presented at a level of detail sufficient to ensure it will not impair the function of or reduce the level of protection of the existing Dallas Floodway Federal project. The Section 408 Report will be developed using the design and analysis contained in the Sponsor's Section 408 Design Submittal Package, and shall at a minimum, address the items contained in the Section 408 Submittal Package Checklist (Encl 1). The intent of the Section 408 Report is to document that the Sponsor's analysis adequately addresses the risk and uncertainty associated with the Section 408 project.

**9. ENVIRONMENTAL STUDIES.** In accordance with the National Environmental Policy Act (NEPA) there are three Federal actions associated with the Trinity Parkway project; (1) the FHWA determination on the selection of the Parkway, (2) the Corps determination of the 408 decision that the project modification is not harmful to the usefulness of the project nor injurious to the public, and (3) the Section 404/10 permit process. The Corps is a cooperating agency with the Federal Highways Administration (FHWA), the lead agency for the Trinity Parkway. As the lead agency FHWA will be responsible for preparing required NEPA documentation including preparation of an EIS and the public notification and coordination. It was mutually agreed that the EIS will serve to document the above mentioned requirements of both cooperating agencies. To expedite review and streamline the evaluation process, the Corps will rely on the EIS prepared by FHWA for its primary environmental documentation to support both the Section 408 project approval and the Section 404/10 permit decisions. The Corps will issue the Section 404/10 public notice after the FHWA Final EIS is published with a preferred alternative identified. The Section 408 submittal package will include a FEIS but it is not necessary that a FHWA ROD be signed prior to the Section 408 approval. The Corps Section 404/10 permit decision will be issued following the Chief of Engineers Section 408 decision and a signed FHWA ROD. Both the Section 404/10 process and Section 408 review will utilize the information from the EIS to develop separate final decision documents (i.e. Section 404/10 Combined Decision Document and Section 408 Record of Decision). In summary it is critical that the EIS contain all the necessary information and that both agencies work closely to assure FHWA and Corps Federal action determinations are fully coordinated.

**10. TECHNICAL REVIEW:** To ensure the quality and credibility of the analysis performed on the Trinity Parkway Section 408 project, SWF will implement a multi-tiered technical review process that uses local, regional, and independent experts. The technical review process must incorporate the principles of EC 1105-2-410, Review of Decision Documents.

a. **District Quality Control Review (DQC)** SWF will be responsible for conducting the District Quality Control of all Sponsor submittals prior to providing these documents for any other level of reviews. SWF will check the basic science and engineering work products focused on fulfilling the project quality requirements as defined in ER 1110-2-1150 and other appropriate Corps technical regulations. The DQC will be managed by SWF, and may be conducted by staff in SWF as long as they did not perform the work that is being reviewed. Regulatory Program actions will be accomplished utilizing established policy, regulation and procedures, will be synchronized with Section 408 activities in accordance with the attached checklist, and will be fully coordinated with the District Project Development Team. The District quality control plan will address processes and document the DQC.

b. **Agency Technical Review (ATR)**. The next level of review will be the Agency Technical Review (ATR). The purpose of this review is to confirm that all engineering work was properly performed, and clearly established criteria, regulations, laws, codes, principles and professional practices has been met. This will apply to the design of roadways, embankments, ramps and transitions and that all encroachments into and onto the levees does not compromise their structural integrity or their ability to safely contain floodwaters. All hydrologic and hydraulic modeling data and initial conditions will be checked for accuracy and reasonableness and the use and application of the Hydrologic Engineering Center Reservoir Analysis System commonly referred to as the HEC-RAS model to ensure reliable results. Geotechnical modeling and analysis will be checked to ensure levee stability and seepage concerns have been addressed. The ATR team will also contribute to scoping the Safety Assurance Review to ensure no duplication in their reviews. The ATR team will consist of national or regional technical specialists who will perform the majority of the review work. Other technical resources will be used as needed to address specific issues or concerns. The ATR team leader will be Laurie Ebner, PhD, P.E. who specializes in hydraulic design. Ms. Ebner will be responsible for managing the ATR. The ATR team members are identified in enclosure 2. It is envisioned that ATR will be accomplished concurrently with the QCR as part of the vertical team coordination. HQUSACE Community of Practice (CoP) technical leaders will be consulted to resolve questions and potential disputes on technical matters and will have final approval on technical issues and recommendations.

c. **Safety Assurance Review (SAR)**. Due to the potential risks to life safety associated with the Trinity Parkway project a SAR will be undertaken. The Safety Assurance review will be conducted by the non-Federal sponsor and must be an independent review carried out by experts outside of the Corps in engineering, hydrology, and other appropriate disciplines. The SAR team will be identified early in the design phase to ensure they are engaged to assess all phases of project design and construction. The SAR must be performed by the non-Federal sponsor prior to a request for approval of the proposed modification.

d. **Review Process**.

(1) District Quality Control (DQC). The DQC will be completed on each of the Sponsor's submittals to include the initial, interim, and final P&S packages, and the Section 408 Report. The DQC will review the Sponsor's submittals to ensure they comply with all technical regulations, and will incorporate the items outlined in the attached Section 408 submittal package checklist. The DQC will continue review during the Trinity Parkway construction phase to ensure the concepts and methodologies approved by the Chief of Engineers is adhered to throughout implementation of the project.

(2) Agency Technical Review (ATR). The ATR will be completed for each of the Sponsor's submittals to include the initial and final P&S packages, and the Section 408 Report. The DCQ will review the Sponsor's submittals to ensure they comply with all technical regulations, and will incorporate, at a minimum, the items outlined in the Section 408 submittal package checklist (Encl 1). After the initial design submittal the ATR and SAR will be conducted concurrently with DQC to ensure vertical coordination. All reviewers will meet

periodically either telephonically or in person to discuss and resolve comments before providing comments to the Sponsors to ensure technical coordination.

e. **Documentation of Technical Review.** SWF will provide documentation of all review comments, to include documentation of how the comment was resolved in the Section 408 Report.

11. **SECTION 408 IMPLEMENTATION.** The Section 408 Report will be the decision document used to support the Chief of Engineer's decision on the Trinity Parkway (Section 408 project). The Section 408 Report will use the design and analysis provided in the Sponsor's Section 408 Design Submittal package. Prior to release of the Section 408 Report for public review, the report will undergo DQC, ATR and SAR. Construction cannot be initiated until SWF has completed review of the final plans and specifications to ensure the concepts and designs included in the Section 408 Report have been adhered to, the Section 404/10 permit has been issued, and the Project Partnership Agreement (PPA) is executed.

12. **PROJECT PARTNERSHIP AGREEMENT (PPA).** Prior to initiation of construction, a PPA will be executed between the city of Dallas and the SWF District Commander documenting Federal and non-Federal requirements associated with the modified Dallas Floodway project. The document will define the roles and responsibilities between the City of Dallas and the Federal government to ensure the modified Dallas Floodway project is operated and maintained to provide the authorized level of protection. The Section 408 Report is the document supporting the PPA.

13. **FUNDING OF REVIEWS:** The Corps is authorized to conduct the review of Section 208 and Section 408 submittals from Inspection of Completed Works (ICW) funds, use of project funds if there is an appropriate ongoing funded project activity related to the Section 408 proposal, and the use of funds specifically appropriated for Section 408 activities. Funds appropriated for the Dallas Floodway Section 5141 project cannot be used to review the 408 submittal. However, the Corps may accept and expend funds provided by an appropriate State agency to perform activities necessary to evaluate an application under Section 408, for which an environmental impact statement is prepared under the National Environmental Policy Act of 1969 provided the Secretary of Transportation finds such activities directly and meaningfully contribute to an underlying transportation project. Therefore with regard to the Trinity Parkway project (Section 408 project), the Corps may accept funds from the Texas Department of Transportation or the NTTA under the authority of Section 6002(j) of Title VI of SAFETEA-LU or chapter 53 of Title 49 United States Code for the purpose of expediting environmental review and streamlining the process.

2 Encls

1. 408 Checklist
2. ATR Nominations

**Trinity Parkway Modifications to the Dallas Floodway Project  
Section 408 Decision Document Checklist**

PURPOSE: This checklist is intended to serve as a guide to the City of Dallas' (hereinafter referred to as the "Applicant") to ensure a complete submittal and aid in the review process for the proposed Trinity Parkway modification. Significant modifications or alterations to the Dallas Floodway, a locally maintained Federally authorized US Army Corps of Engineers (hereinafter referred to as "Corps") project, will require the Chief of Engineers approval under 33 USC 408. The information requested will be reviewed by technical specialists and submitted to the Southwestern Division for quality assurance review prior to making any recommendations to HQUSACE. This review process is more fully explained in the Section 408 guidelines document. Incomplete submittals will delay Corps processing of applicant requests. The Applicant will provide an explanation for required items not provided in the submittal package. \*\* This list is not comprehensive, but intended to include items that typically occur in the majority of projects. Requirements are subject to change based upon specific project needs and agency/policy/regulation revisions.

It is strongly recommended the Applicant work with Ft. Worth District to determine final needs.

Section I: Applicant Prepared Documents (to be retained by District office unless otherwise requested)

Project Summary Report that addresses all of the items below. Report should summarize the results of all analyses and conclusions reached for each requirement. Additional details describing some sections where needed are included below.

- Written request for approval of the project modification
- A physical and functional description of the existing project to be modified
- A detailed description of the proposed modification
- The purpose/need for the modification
- A description of any related, ongoing Corps studies/efforts in the watershed
- A Public Interest Determination
- Appropriate National Environmental Policy Act (NEPA) and other environmental documentation.
- Any Administrative Record
- A discussion of indirect effects
- A discussion of Executive Order (E.O.) 11988 considerations
- Technical Analysis

Technical Analyses and Adequacy of Design. All necessary technical analyses should be provided. The list below is only a guide for typical items that would routinely be expected and is not intended to list every item or analysis that could be needed to make this determination.

- Geotechnical Evaluation.
  - Stability
  - Under seepage
  - Erosion control
  - Vegetation

- Material usage/borrow/waste/transport/hauling
- Structural
  - Bridges and related abutments
  - Pier penetrations of levee embankments
  - Diaphragm walls
  - Other structural components integral to the project
  - Gates or other operable features
- Hydraulic and Hydrology
  - Changes in inflow
  - Changes in water surface profiles and flow distribution
  - Assessment of local and system wide resultant impacts
  - Upstream and downstream impacts of the proposed alterations, including Sediment transport analysis
  - Impacts to existing floodway and other regulated or hazard areas and elevations
- Operation and Maintenance Requirements
  - Applicant facilities
    - Pre-flood preparation
    - Post-flood clean up
    - Sediment removal
    - Impacts to operation & maintenance (long and short-term)
    - Impacts on project access (long and short-term)
    - Impacts on the ability to perform surveillance (long and short-term)
    - Impacts to flood-fighting (long and short-term)
    - Impact on the ability to make emergency repairs (long and short-term)
  - Water control management plan
    - Impacts to other Federal projects within the basin
    - Impacts to Corps facilities
  - Construction Considerations
    - Care of water during construction (diversions, protection of new work, flood operations, etc.)
    - Construction Phasing plan

Real Estate Requirements

- Reference Engineering Regulation (ER) 405-1-12, Chapter 12, Sections I and II.
  - Include:
    - Description of all Lands, Easements and Rights of Way required for the modification, including proposed estates
    - Description of all Lands, Easements and Rights of Way owned as a part of the authorized project
    - Maps clearly depicting both required real estate and existing real estate limits
    - Navigational servitude, facility relocations, relocation housing assistance and any other relevant factors

Risk and Uncertainty Analysis. A risk and uncertainty analysis will be applied to all evaluations of alterations and modifications to Corps flood damage reduction projects to be approved under 33 USC 408. Discuss the changes to the existing level of risk to life, property as a result of the modification. Will the project incur damages more frequently as a result of flooding that will require Federal assistance under PL 84-99?

Administrative record for key decisions for related actions for applicant proposed modification such as environmental reports, judges' decisions, permits, etc. Documents listed chronologically, with copies provided.

Discussion of Executive Order 11988 Considerations

- Justification to construct in the floodplain
- Formal approval from the local floodplain administrator
- Approved Conditional Letter of Map Revision (CLOMR) from Federal Emergency Management Agency
- No practicable alternative determination, if Federal agency, Agency determination.
- Public notice notifications

Complete Section 404/10 Permit Application To Be Submitted to the District. Provide all necessary information to process a permit action if required under Section 404 of the Clean Water Act (CWA) or Section 10 of the Rivers and Harbors Act (RHA) of 1899 (Section 10). Refer to 33 CFR 320-332 and supplemental policies. The following is a partial list of information normally required to complete an individual permit review to authorize work under Section 404 or Section 10. The Applicant should refer to the Ft. Worth District Regulatory Program website for detailed submittal requirements. <http://www.swf.usace.army.mil/pubdata/environ/regulatory/introduction/submittal.pdf>

- Wetland delineation/location of waters of the US
- Submit complete permit application including project description adequate to determine impacts to waters of the US (33 CFR 325)
- Appropriate information to complete documentation required under the National Environmental Policy Act (NEPA) including, but not limited to:
  - Assessment of impacts to waters of the US, including wetlands and navigable waters.
  - Description and analysis of project alternatives
  - Assessment of compliance with CWA 404(b)(1) guidelines
  - Assessment of project impacts on other NEPA public interest factors including but not limited to water quality, cultural resources, fish and wildlife, endangered species, economics, cumulative impacts analysis, etc.
  - A discussion of indirect effects/impacts.
  - CWA 401 Water Quality Certification (WQC) by Texas Commission on Environmental Quality (TCEQ). A state 401 water quality certification is mandatory prior to beginning work under section 404 permit. Corps can issue provisional permit, but permittee still cannot begin work without 401 water quality certification from TCEQ (applicant and TCEQ)
  - Mitigation plan for impacts to waters of the US
  - Environmental Assessment (EA) or Environmental Impact Statement (EIS) (EIS submitted by applicant with guidance from District). NEPA is not the only requirement, e.g., Endangered Species Act (ESA) compliance must be demonstrated and WQC from TCEQ. If NEPA document does not contain sufficient information

for the Corps to reach a permit decision, it must be supplemented. This process will result in delays in reaching a decision on the 404/10 permit application.

Note: If the project requires an EIS and there is another lead Federal agency, that agency will sign a Record of Decision (ROD) for the project. Another ROD for the 404/10 permit action will be prepared by the district and signed by the District Engineer following review and approval of the 408 request by the Chief of Engineers. \*

Section II: District Prepared Documents and Analysis of Applicant's Request to Be Submitted by District to MSC (unless otherwise noted)

- Transmittal letter to MSC Commander with District Commander's determination of technical soundness and environmental acceptability.
- Written request for approval of the project modification (applicant prepared)
  - Project Summary Report from Section I
  - Sponsor request letter
  - A detailed description of the proposed modification
  - The purpose/need for the modification
- A description of any related, ongoing Corps studies in the watershed
- The District shall ensure all necessary actions are completed in accordance with current policy and guidance relative to Section 404 of the CWA and/or Section 10 of the RHA. The District office will perform a jurisdictional determination. If jurisdictional, then authorization from the Corps is required prior to the applicant beginning work. The District will coordinate and advise the applicant on NEPA documentation to ensure submittal of adequate information to reach a permit decision. At a minimum, the Districts will provide a summary of the status of the Section 404/10 permit review process to the MSC along with the District 408 decision document submittal. At the time of this submittal, there should be a District approved mitigation plan from the applicant. In addition, the District should have accepted the environmental documentation necessary for the permit decision.
- Real Estate Review (District/Division)
- Documentation of Technical Review. The applicant's technical analysis, the environmental documents, and the district's basis for determining technical adequacy and environmental acceptability shall undergo Agency Technical Review and Safety Assurance Review. The Agency Technical Review (ATR) and the Safety Assurance Review (SAR) shall be in accordance with ER 1105-2-410, EC 1165-2-209 and Policy and Guidance Memorandum, Supplement #1 to CECW-PB dated 23 October 2006.
  - Description of the ATR/ technical review team is included as part of the guidelines document.
  - Consolidation and analysis of the ATR comments, resolution of comments and district commentary on adequacy of technical review
  - Consolidation and analysis of the Safety Assurance Review (SAR) comments, resolution of comments and district commentary on adequacy of technical review.
  - Coordination of Section 404/10 Permit Process and 408/EIS Processes.
  - HQUSACE has determined that two RODs will be required for projects requiring an EIS prepared by another lead Federal agency when the project also requires a Corps 408 analysis

and authorization under Section 404/10. One ROD will be issued by the lead Federal agency on the project's EIS. This EIS must address the public interest issues related to both 408 technical acceptability and the 404/10 permit requirements. The second ROD, which will be prepared by the District, will not be signed by the District Engineer until the Corps has completed its 408 analysis and the Chief of Engineers has issued 408 approval. The Corps' ROD and the 408 approval will be processed as concurrently as possible to reduce the delay between the 408 decision and the Section 404/10 permit decision.

- Where the 408 action requires an EIS or an EA, the Corps is the lead Federal agency, and there is a Section 404/10 permit action, the Section 404/10 ROD, which will be prepared by the District, will not be signed by the District Engineer until the Corps has completed its 408 analysis and the Chief of Engineers has issued 408 approval. The Corps' ROD and the 408 approval will be processed as concurrently as possible to reduce the delay between the 408 decision and the Section 404/10 permit decision.
- Where the 408 action requires an EA, the Corps is the lead Federal agency, and there is not a Section 404/10 permit action, the District will prepare the EA and ROD analyzing the 408 request, and submit it to the Chief of Engineers for review and approval. The 408 approval process will involve vertical coordination with the Corps to reduce potential delays in the 408 decision.

### Section III, MSC prepared documentation and analysis of District 408 submission (30 days)

- Policy, Legal and Technical Analysis. The MSC must certify legal and policy compliance and quality management of the 408 decision document.

### Section IV, HQ overall analysis and 408 decision recommendations to the Chief (30 days)

- Policy, Legal and Technical Analysis

1. Have all technical requirements of Section 408 been met?
2. Have all legal requirements of NEPA been met?
3. Draft transmittal letter for signature by the Chief with final determination.

Trinity Parkway Section 408  
Nominations for Agency Technical Review Team

**ATR Review Team Leader**

Laurie Ebner, PhD, P.E. Hydraulics and Hydraulic Design  
Portland District

**Hydraulics and Hydrology**

Jerry Webb, P.E., CoP Leader  
HQUSACE

John Hunter, P.E.  
HQUSACE

Gary Brunner, P.E.  
Hydrologic Engineering Center

**Geotechnical**

Joe Koester, PhD, P.E., CoP leader  
HQUSACE

Dick Peterson, PhD, P.E.  
Engineering Research and Development Center

Ron Wahl, P.E.  
Engineering Research and Development Center

Monte Pearson, Geologist  
Engineering Research and Development Center

**Vegetation**

Kevin Holden, RLA  
Rock Island District

**Structural**

Peter Rossbach, P.E.  
Structural CoP Lead  
HQUSACE

**Real Estate**

Clayton Redmond  
CEMP-SWDRIT

Trinity Parkway Section 408  
Nominations for Agency Technical Review Team (cont.)

**Environmental**

Ray Hedrick  
Ecologist  
Nashville District

**Legal**

Morris Tanner  
Chief Counsel SWD-RIT

**Risk and Uncertainty**

Eric Thaut  
SPD Center of Expertise for Flood Damage Reduction  
POC for Safety Assurance Review

ENCL 2