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CESWD-PDP


09 JUL 2015

MEMORANDUM FOR Commander, Fort Worth District

SUBJECT: Section 205 Flood Risk Management Project, Willis Creek, Brownwood, TX
(P2# 171552) – Approval of Review Plan (Feasibility phase).

1. Reference EC 1165-2-214 (Civil Works Review Policy), 15 December 2012.
2. The subject Review Plan (RP), prepared in accordance with reference 1, has been reviewed by my staff (Encl 1). The review indicates that the project is limited in scope and complexity, and poses minimal risk and no safety hazards greater than existing conditions. Accordingly, Type I Independent External Peer Review (IEPR) is not required.
3. In developing the RP and scope of the Project Management Plan for the design phase, the District will coordinate with Southwestern Division (SWD) to assess the need, if any, for a Type II Safety Assurance Review (SAR) and a Value Engineering (VE) study early during the design phase. Requests for a waiver of these requirements will be submitted to SWD for approval at that time, as may be appropriate.
4. Based on the factors outlined in the RP, the lead for the Agency Technical Review (ATR) is approved within the major subordinate command.
5. The subject RP is approved. The RP must be posted to the District public website, with the names of personnel removed. The District will provide the direct electronic link to the action officer identified below.
6. My point of contact for further information is Sam Arrowood, Regional Program Manager for the Continuing Authorities Program (Acting) at 469-487-7127 or Sam.A.Arrowood@usace.army.mil.

Encl


DAVID C. HILL
Brigadier General, USA
Commanding

CF:
CESWF-PM-C/Eckhardt

REVIEW PLAN

Willis Creek, Brownwood, Texas
Section 205 Detailed Project
Report
Fort Worth District

MSC Approval Date: 9 July
2015

Last Revision Date:
23 June 2015



**US Army Corps
of Engineers ®**

REVIEW PLAN

Willis Creek, Brownwood, Texas

Section 205 Detailed Project Report and Integrated Environmental Assessment

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Willis Creek, Brownwood, Texas, feasibility study being conducted by the U.S. Army Corps of Engineers (USACE). The study authority is Section 205 of the Flood Control Act of 1948, as amended.

b. References

- 1) Engineering Circular 1165-2-214, Civil Works Review, 15 Dec 2012;
- 2) Engineering Circular 1105-2-412, Assuring Quality of Planning Models, 31 March 2013;
- 3) Engineering Regulation 1110-1-12, Quality Management, 30 Sep 2006;
- 4) Engineering Regulation 1105-2-100, Planning Guidance Notebook, Appendix F, Continuing Authorities Program, Amendment #2, 31 Jan 2007;
- 5) Engineering Regulation 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007;
- 6) Director of Civil Works' Policy Memorandum #1, Subject: Continuing Authority Program Planning Process Improvements, dated 19 Jan 2011;
- 7) Willis Creek Channel Improvement, Brownwood, Texas, Project Management Plan April 2015; and
- 8) Southwestern Division MSC and District Quality Management Plans.

c. Requirements. This Review Plan was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review for this study.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically a Planning Center of Expertise (PCX), the Major Subordinate Command (MSC) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is Southwestern Division (SWD).

3. STUDY INFORMATION

a. Decision Document. The study will be performed under the Section 205 Continuing Authorities Program (CAP). The document will identify a Recommended Plan within the study area that addresses the water and related problems in the study area in the form of a Detailed Project Report (DPR). This Review Plan defines the scope and level of peer review for the Willis Creek, Brownwood, Texas, Section 205 feasibility study; hereinafter referred to in this Review Plan as "Willis Creek Section 205 study." The approval level of the report is USACE Southwestern Division. An Environmental Assessment will be integrated into the DPR for compliance with the National Environmental Policy Act (NEPA).

b. Study/Project Description. The study will take place on Willis Creek within the City of Brownwood, Texas. Willis Creek originates about five miles southwest of the City of Brownwood and flows generally north and then east, passing through the southern portion of Brownwood, to its confluence with Pecan

Bayou southeast of the city. Flood risks in the City of Brownwood and specifically Willis Creek are substantial and are exacerbated by the flat topography in the area. Documented flood damages occurred in 1980, 1982, 1984, 1986 and 1990, with two deaths, damages exceeding \$10 million and a Presidential disaster declaration. Flooding occurred again in 1991, 2000 and most recently in 2010 from Tropical Storm Hermine. A study was completed by USACE in 2003 under a General Investigation study authority, which included an economically justified plan identified for Willis Creek. In light of the scope of the Recommended Plan in the 2003, it was recommended the project be pursued under CAP. A memorandum dated 17 July 2003 formally converted the GI study to a CAP and directed the Fort Worth District to initiate plans and specifications for the Recommended Plan presented in the 2003 feasibility report. Because of the amount of time that has passed since approval was given, a new feasibility report and integrated EA will be prepared. The study team plans to utilize the existing information from the 2003 study. The feasibility study will focus on an update of information across disciplines for the Recommended Plan from the 2003 report to “re-verify” the plan assuming slightly changed conditions in the study area. A Federal Interest Determination Paper was completed in July 2014. The Recommended Plan from 2003 report is a 40-foot (bottom-width) channel widening and diversion channel with channel improvements to the existing Willis Creek. The Recommended Plan was estimated to cost approximately \$7.9 million (2001 prices) from the 2003 report. The \$7.9 million in May 2014 prices is approximately \$12.4 million. This cost estimate is only an update from the 2003 report; construction costs would be redone in the feasibility study effort.

Based on the earlier feasibility study, the anticipated project area is within the Willis Creek channel inside the city limits of Brownwood and a diversion channel cut across open field downstream of 14th Street and reconnecting with the creek near 4th Street. The location of Willis Creek within Brownwood is shown in Figure 1. The Figure also shows the damageable properties, predominantly north of the creek, in relation to the creek.

c. Factors Affecting the Scope and Level of Review. The Willis Creek Section 205 is unique because a feasibility report and integrated EA were prepared and approved by USACE in a previous GI study effort. The study team intends to utilize the previous plan formulation performed in 2003 for this study. An effort will be performed using hydrologic and hydraulic and economic criteria to affirm the plan from 2003 remains the NED plan. The study performed in 2003 included a mitigation plan for environmental resources. The 2003 environmental mitigation planning will be updated in this study effort due to the time that has transpired and to satisfy any potential agency requirements. Because the previous plan formulation will be utilized in this study, the majority of the report will consist primarily of a new feasibility-level design, new cost estimate/certification, and a new mitigation plan for the 2003 Recommended Plan.

In light of the scope of this study, the peer review will focus on:

- Modeling and evaluations to ensure that economic benefits, and costs, are up-to-date;
- Compliance with NEPA requirements; and
- Completeness of preliminary design and support documents.

The study area is highly urbanized. Wildlife habitat is limited within the watershed because of the urbanized nature of the surrounding area. A Supplemental Environmental Assessment will be developed for NEPA due to the long history of environmental analyses that have been performed in the area and no significant impacts are anticipated. There is a riparian corridor along Willis Creek in the study area. Avoidance measures and appropriate mitigation will be incorporated into the Recommended Plan.

Construction of a channel modification project would not increase life-safety risk because components would not be prone to structural failure, thus creating a new life-safety risk that did not exist before. For

these reasons, it is the district assessment there is no significant threat to human life greater than existing conditions associated with the project as a factor for the level of review of this study. In addition, modeling (like HEC-FIA) would not be required for the study. The intent of implementing a project on Willis Creek would be to reduce the residual economic and life-safety risk caused by flooding on Willis Creek. Since reduction in economic and life-safety risk is an objective of the study, life-safety risk reduction would be discussed qualitatively. It is important to note, while risk reduction is an objective of the study, economic damages and life-safety risk can never be 100% eliminated. Two flood-related deaths have been noted in the study area; however, they cannot be specifically attributed to flooding on Willis Creek. One was traveling in their car, while the other was cleaning out a storm drain (1990 flood event). The District Chief of Engineering's concurs with this assessment regarding threat to human life associated with the project as a factor for the level of review of this study.

There is no new science involved in the study, i.e. traditional methods for modeling will be used in this study. All predictions of outcomes have a low level of uncertainty. All reviews will be conducted at a level of detail commensurate with the scope and complexity of a small, relatively routine construction project. Additional discussion regarding the reviews to be conducted for the study effort is included in the respective sections of this Review Plan.



Figure 1. Willis Creek, Brownwood, Texas Aerial Imagery

d. In-Kind Contributions. The sponsor for the study is providing cash to perform their 50% cost-share responsibility for the feasibility study.

4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC. The DQC of products and reports shall also cover any necessary National Environmental Policy Act (NEPA) documents and other environmental compliance products.

a. Documentation of DQC. DQC comments and responses will be documented in a DQC memorandum. DrChecks review software (ProjNet.org) can be used to record individual comments and their resolution, at the discretion of the district; however, use of DrChecks does not replace the requirement to prepare a DQC memorandum. As a minimum requirement, the DQC memorandum will

summarize the main issues identified, what actions were taken to resolve the comments, and how resolution of the comments was achieved. Once DQC is complete, the DQC memorandum will be provided to the ATR team(s) and vertical team, as appropriate. DQC certification can be documented in a similar fashion to ATR certification using the Statement of Technical Review (Attachment 2). A primer on DQC is located here:

<http://planning.usace.army.mil/toolbox/library/Misc/PCXGuildDQCPrime090112.pdf>.

b. Products to Undergo DQC. All products will undergo DQC prior to completion, utilizing SMART Planning tools (report synopsis, risk register, etc). DQC will be conducted for interim products. At this time, products anticipated to undergo DQC include: targeted AM and TSP-level products, environmental compliance documents prepared for compliance with environmental laws (e.g. NEPA documentation, Section 106 consultation documentation, Clean Water Act 404 (b)(1) evaluations, fish and wildlife mitigation and monitoring plans, biological assessments (if required), and the draft and final DPR/EA. The following shows the products to be reviewed through DQC.

Type of Product	Products to be Reviewed
Draft Decision Document	Draft DPR/EA
Final Decision Document	Final DPR/EA
Environmental Compliance Documents	NEPA Documentation, Section 106, Clean Water Act 404(b)(1), fish and wildlife mitigation and monitoring plans, biological assessments, fish and wildlife coordination
Engineering Model(s)	As Applicable, targeted
Planning Model(s)	As Applicable, targeted
SMART Planning tool	Report Synopsis
Supporting Interim Documents	Alternatives Milestone, targeted
Supporting Interim Documents	TSP Milestone, targeted

c. Required DQC Expertise. DQC expertise will mirror the expertise on the PDT and will be conducted by senior district personnel who have not contributed to the study. The team rosters are included in Attachment 1. More junior district personnel may perform DQC for developmental purposes under the guidance of a senior staff member of the same discipline.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically adequate and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR for CAP is managed within USACE by the above-designated RMO and is conducted by a qualified team that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate.

An ATR lead has been identified within the home MSC, which is the RMO for the study effort. This selection is based on the following criteria: 1) The ATR lead has extensive experience conducting ATR and leading ATR teams, including coordination with PCXs as appropriate for feasibility reports; 2) The current study is not complex; 3) ATR lead resource is available within the study submittal schedule timeframes; and 4) The identified ATR lead is outside the district conducting the study and has an appropriate level of independence from the study effort. Therefore, utilization of an ATR lead within the MSC/RMO is considered sufficient for the Willis Creek Section 205 based on these considerations. Approval of this Review Plan includes approval of the ATR lead and will be documented in the MSC Review Plan Approval memorandum in accordance with EC 1165-2-214, Appendix G.

a. Products to Undergo ATR. ATR will be performed throughout the study in accordance with the district and MSC Quality Management Plans. Targeted ATR on interim products, and ATR on any planning or engineering models, shall be documented and discussed at the MSC Decision milestone. Certification of the ATR on the Draft DPR/EA will be provided prior to the District Commander signing the final DPR/EA. The following table outlines the products to undergo ATR. The SMART Planning tool documents will be provided to the ATR team, but do not require ATR review. Because the previous plan formulation will be utilized in this study, the majority of the report will consist primarily of a new feasibility-level design, updated benefits, new cost estimate/certification, and a new mitigation plan for the 2003 Recommended Plan. Thus, the “draft” DPR will be developed earlier than normal since plan formulation will not be performed and detailed design can begin after the Alternatives Milestone.

Type of Product	Products to be Reviewed
Draft Decision Document	Draft DPR/EA (AFB/TSP submittal (CW190))
Engineer & Planning model	The Flood Damage Analysis modeling will undergo targeted ATR following development of existing and future without-project conditions (Alternatives Milestone).
Supporting Interim Documents	Alternatives Milestone (FSM CW050), targeted for supporting documentation for the H&H and economic work for the study. This includes the Report Synopsis and other SMART Planning tool documents and draft technical appendices.

b. Required ATR Team Expertise. The expertise represented on the ATR team reflects the significant expertise involved in the work effort and will generally mirror the expertise on the PDT. The PDT will make the initial assessment of what expertise is needed based on the PMP and the factors affecting the scope and level of review. The RMO, in cooperation with the ATR Lead, will determine the final make-up of the ATR team. Since this is a Section 205, a flood risk analysis review is required on the ATR team. The FRM PCX will be consulted for a roster of qualified risk analysis reviewers. The following is a list of the expected ATR team makeup.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Planning/Economics	The Planning reviewer should be a senior water resources planner/economist with experience in flood risk management studies.
Environmental Resources/NEPA	Team member should be an environmental subject matter expert and be familiar with preparing, processing, and reviewing NEPA documents and environmental and cultural resource compliance requirements for FRM studies.
Hydrology & Hydraulic Engineering	Team member should be an H&H subject matter expert, demonstrate experience in the field of urban hydrology and hydraulics, high impact of urban development on hydrology, space constraints of an urban environment, channel modifications, and the use of HEC computer modeling systems. The individual should be a certified PE.
Risk Analysis	A risk analysis review is required for FRM studies. The risk analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including familiarity with how information from the various disciplines involved in the analysis interact and affect the results.

Civil Engineering	Team member should be a civil design subject matter expert and have experience with channel modification design. The individual should be a certified PE.
Cost Engineering	For CAP projects, ATR of the cost estimate will be conducted by pre-certified district cost personnel within the region. The pre-certified list of cost personnel has been established and is maintained by the Cost DX. The cost ATR member will coordinate with the Cost DX for execution of cost ATR and cost certification. The Cost DX will be responsible for final cost certification and may be delegated at the discretion of the Cost DX. (Reference CAP Planning Process Improvements Memorandum 19 January 2011).
Real Estate	Team member should have experience developing real estate plans for CAP projects. Such projects would include acquisition of multiple interests and estates. The RE ATR reviewer will be a senior RE professional selected from the Nationally approved RE ATR list.

c. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- 1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- 2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
- 3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- 4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to assess whether further specific concerns may exist. The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- 1) Identify the document(s) reviewed and the purpose of the review;
- 2) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- 3) Include the charge to the reviewers;
- 4) Describe the nature of their review and their findings and conclusions;
- 5) Identify and summarize each unresolved issue (if any); and
- 6) Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date. For this study, the certification of the ATR on the Draft DPR/EA will be provided prior to the District Commander signing the final DPR/EA. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- **Type I IEPR.** Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.
- **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

a. Decision on IEPR. All CAP projects are excluded from Type I IEPR except Section 205 and Section 103 or those projects that include an EIS or meet the mandatory triggers, as discussed below. Exclusions for Type I IEPR for Section 205 and Section 103 projects will be approved on a case-by-case basis by the MSC Commander, based upon a risk informed decision process and may not be delegated. The district will seek an exclusion to Type I and Type II IEPR for the Willis Creek Section 205 study. The basis for the exclusion of Type I IEPR and Type II SAR for the Willis Creek Section 205 study is discussed below. The study does not trigger any of the factors listed in EC 1165-2-214 requiring an IEPR as listed here:

- 1) **Significant threat to human life.** Life-safety risks would not be increased above existing conditions because the components of the potential project (channel modifications) are not prone to structural failure, thus creating a new life-safety risk that did not exist before;
- 2) **Total project cost > \$45M.** The study costs are expected to be below \$45M;
- 3) **Request by the State Governor.** The State Governor has not requested an IEPR;

- 4) **Request by the head of a State or Federal Agency.** It is expected the impacts to resources in the study area would not be significant, and there has not been a request by a State or Federal agency to perform IEPR;
- 5) **Significant public dispute as to size, nature or effects.** Public opposition is not expected to be significant;
- 6) **Significant public dispute as to the economic or environmental costs or benefits.** Public opposition is not expected to be significant;
- 7) **Use of novel methods, complex challenges for interpretation, precedent-setting methods/models, could change prevailing practices.** There is no new science involved in the project, and all predictions of outcomes have a low level of uncertainty and are not precedent setting. Channel modifications are methods that are typical of small-scale flood risk reduction projects with which the Corps has ample experience, and have safely and effectively been used before.
- 8) **Project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule.** Channel modifications are methods that are straightforward and have safely and effectively been used before. No unique construction sequencing or scheduling is proposed with this study.
- 9) **There are no other circumstances where the Chief of Engineers or Director of Civil Works determines Type I IEPR is warranted.** No other circumstances are known that would warrant a Type I IEPR.

Additionally, when Type I IEPR will not be performed:

- 1) Risks of non-performance and residual flooding must be fully disclosed in the decision document and in a public forum prior to final approval of the decision document;
- 2) The non-Federal sponsor must develop a Floodplain Management Plan, including a risk management plan and flood response plan (and evacuation plan if appropriate for the conditions), during the feasibility phase; and
- 3) The non-Federal sponsor must explicitly acknowledge the risks and responsibilities in writing in a letter or other document (such as the Floodplain Management Plan) submitted to the Corps of Engineers along with the final decision document.

For this flood risk management study, it has been determined through a risk-informed process that the scope of the Willis Creek Section 205 study is limited and the study would not significantly benefit from a Type I IEPR and Type II SAR during the feasibility phase of this study. The decision criteria in EC 1165-2-214 were reviewed and the study is excluded from Type I IEPR and Type II SAR during the feasibility phase. Approval of this Review Plan includes approval of the exclusion and will be documented in the MSC Review Plan Approval memorandum.

While the project would not benefit from Type I or Type II during the feasibility phase of project development, an evaluation will be performed on the need, if any, for a Type II (SAR) during scoping and development of the Project Management Plan (PMP) for the preconstruction, engineering and design phase.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review

processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. COST ENGINEERING AND ATR MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

For CAP projects, ATR of the cost estimate will be conducted by pre-certified district cost personnel within the region. The pre-certified list of cost personnel has been established and is maintained by the Cost DX. The cost ATR member will coordinate with the Cost DX for execution of cost ATR and cost certification. The Cost DX will be responsible for final cost certification and may be delegated at the discretion of the Cost DX, (Reference CAP Planning Process Improvements Memorandum 19 January 2011). For the Willis Creek 205 study, the RMO and ATR lead will coordinate potential delegation of the cost certification based on the relative non-complexity of the study effort.

9. VALUE ENGINEERING

As a minimum, one VE study shall be performed during the feasibility phase for projects equal or greater than \$10 million in addition to a VE study during the PED phase. VE shall be performed in accordance to the current ER 11-1-321. However, the VE strategies could be determined by Value Management Plan (VMP) via the Screening Tool for VE compliance requirements.

10. MODEL CERTIFICATION AND APPROVAL

In accordance with Director of Civil Works Policy Memorandum #1, dated 19 January 2011, Subject: Continuing Authority Program Planning Process Improvements, "Approval of planning models under EC1105-2-412 is not required for CAP projects. MSC commanders remain responsible for assuring the quality of the analyses used in these projects. ATR will be used to ensure that models and analyses are compliant with Corps policy, theoretically sound, computationally accurate, transparent, described to address any limitations of the model or its use, and documented in study reports."

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

a. Planning Models. The district proposes to use of the same Habitat Evaluation Procedures (HEP) utilized in the 2003 feasibility report (listed in the table below); however, some of the HSI models have not been certified. The basis for the decision to use the same models was to maintain consistency and comparability with the previous analysis to re-verify conditions in the study area and the mitigation planning performed in the 2003 report. A Qualitative Habitat Evaluation Index (QHEI), 2006, model is proposed for the Willis Creek Section 205 study. The use of this model, versus the Index of Biotic Integrity (IBI), would be more appropriate for this study. A QHEI would be better suited for a CAP study of this size and complexity and provide the necessary information to make a decision regarding environmental mitigation requirements. In addition, it has been approved for one-time use on the Leon Creek study by the ECO-PCX, has been modified for Texas streams and the study team is already familiar with the modified QHEI for use in this study. SWD has concurred that the environmental habitat models proposed for use in this study are appropriate. The following planning models will be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA 1.2.5 (Flood Damage Analysis)	The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project conditions for the study to aid in the selection of a recommended plan to manage flood risk.	Certified
IWR Planning Suite version 2.0.6	Used for annualizing costs	Certified
The United States Fish and Wildlife Service (USFWS) Habitat Evaluation Procedure (HEP)	The USFWS HEP will be used to evaluate habitat conditions that would result from the Recommended Plan to identify any environmental mitigation. The USFWS HEP is not a model. A HSI for indicator species is derived by aggregating suitability indices (SIs) critical for habitat variables. The following HSI models will be used for the study: raccoon, fox squirrel, barred owl, and Carolina chickadee for bottomland hardwood forests and upland woodlands; eastern cottontail, raccoon, red-tailed hawk, and scissortail flycatcher for shrubland/regeneration; and eastern cottontail, eastern meadowlark, and red-tailed hawk for the grassland/old field.	SWD Approved
Qualitative Habitat Evaluation Index, 2006	The QHEI will be utilized to estimate instream impacts and identify any impacts that need to be mitigated. The model utilized for the Willis Creek study will be similar to the modified QHEI used in the Leon Creek study. The Leon Creek study obtained a one-time certification for the modified QHEI model from the ECO-PCX. Applicable resource agencies are familiar with the model. Use of the modified QHEI model used for Leon would be appropriate for the Willis Creek study.	SWD Approved

b. Engineering Models. The following engineering models will be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC-RAS 4.1 (River Analysis System)	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady- and unsteady-flow river hydraulics calculations. The program will be used for steady-flow analysis to evaluate the future without- and with-project conditions.	HH&C CoP Preferred Model
HEC-HMS 4.0	The Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS) simulates precipitation-runoff processes.	HH&C CoP Preferred Model

11. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. Certification of the ATR on the Draft DPR/EA will be provided prior to the District Commander signing the final DPR/EA. One main ATR will be performed on the Draft DPR/EA. Targeted ATR will be performed throughout the study on interim study documentation according to the proposed schedule below. Cost estimates to conduct the ATR are also included.

Products to be Reviewed	Date	Estimated Cost
Draft DPR/EA	13 Nov 2015 – 27 Nov	\$16,000
Alternatives Milestone HEC-FDA model	12 Jun 2015 – 26 Jun 2015	TBD
Alternatives Milestone (Supporting Interim Documents)	12 Jun 2015 – 26 Jun 2015	TBD

b. Model Certification/Approval Schedule and Cost. Not Applicable.

12. PUBLIC PARTICIPATION

The public will be able to comment on the Draft DPR/EA. After the MSC Decision Milestone, a 30-day public review period will commence. The public will have an opportunity to review and provide comments on the DPR occurring approximately December 2015. In addition, the public can provide comments at anytime during the feasibility study process to the study's project manager at the following address:

U.S. Army Corps of Engineers, Fort Worth District
ATTN: CAP Project Manager, CESWF-PM-C P.O. Box 17300
Fort Worth, TX, 76102-0300

All published reports (including this Review Plan) can be found at the Fort Worth District's website (www.swf.usace.army.mil) as well as directions for obtaining any information that may be disclosed under the Freedom of Information Act (Public Law 89-554, 80 Stat. 383; amended 1996, 2002, 2007).

13. REVIEW PLAN APPROVAL AND UPDATES

The Southwestern Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the Review Plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

14. REVIEW PLAN POINTS OF CONTACT

Public questions and/or comments on this Review Plan can be directed to the following points of contact:

U.S. Army Corps of Engineers, Fort Worth District
ATTN: CAP Project Manager, CESWF-PM-C
P.O. Box 17300
Fort Worth, TX. 76102

U.S. Army Corps of Engineers, Southwestern Division
Planning & Policy Division, CESWD-PDS-P
ATTN: SWD Continuing Authorities Program Manager
1100 Commerce St.
Dallas, TX. 75242

ATTACHMENT 1: TEAM ROSTERS

Project Delivery Team:

Discipline	PDT Member	Contact Information
Project Management		
Plan Formulation		
H&H		
Geotechnical		
Civil Engineering		
Cost Estimating		
Economics		
Cultural		
Environmental		
Environmental		
Real Estate		
Office of Counsel		
GIS		

Agency Technical Review Team:

Discipline	PDT Member	Contact Information
RMO Representative		
ATR Lead/Plan Form		
H&H	TBD	
Risk Analysis	TBD	
Civil Design	TBD	
Cost Estimating	TBD	
Economics	TBD	
Environmental/NEPA	TBD	
Real Estate		

**ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS
COMPLETION OF AGENCY TECHNICAL REVIEW**

The Agency Technical Review (ATR) has been completed for the <type of product> for <project name and location>. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-214. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer’s needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

Name Date
ATR Team Leader
Office Symbol/Company

SIGNATURE

Name Date
Project Manager
Office Symbol

SIGNATURE

Name Date
Architect Engineer Project Manager¹
Company, location

SIGNATURE

Name Date
Review Management Organization Representative
Office Symbol

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE

Name Date
Chief, Engineering Division
Office Symbol

SIGNATURE

Name Date
Chief, Planning Division
Office Symbol

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
EA	Environmental Assessment	OEO	Outside Eligible Organization
EC	Engineer Circular	OSE	Other Social Effects
EIS	Environmental Impact Statement	PCX	Planning Center of Expertise
EO	Executive Order	PDT	Project Delivery Team
ER	Ecosystem Restoration	PAC	Post Authorization Change
FDR	Flood Damage Reduction	PMP	Project Management Plan
FEMA	Federal Emergency Management Agency	PL	Public Law
FRM	Flood Risk Management	QMP	Quality Management Plan
FSM	Feasibility Scoping Meeting	QA	Quality Assurance
GRR	General Reevaluation Report	QC	Quality Control
Home District/MSD	The District or MSD responsible for the preparation of the decision document	RED	Regional Economic Development
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMC	Risk Management Center
IEPR	Independent External Peer Review	RMO	Review Management Organization
ITR	Independent Technical Review	RTS	Regional Technical Specialist
LRR	Limited Reevaluation Report	SAR	Safety Assurance Review
MCX	Mandatory Center of Expertise	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act