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US ARMY ENGINEER DIVISION, SOUTHWESTERN
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CESWD-PD-P

07 DEC 2012

MEMORANDUM FOR Commander, Galveston District

SUBJECT: Updated Review Plan for Brazos Island Harbor Channel Improvement Feasibility Study

1. References:

a. EC 1165-2-209, Civil Works Review Policy, 31 January 2010; and Change 1, 31 January 2012.

b. Memorandum, CESAM-PD-D, 16 November 2012, subject: Review Plan Approval, Brazos Island Harbor, Texas Channel Improvement Project Feasibility Report, Galveston District.

2. The review plan for the subject study, enclosed, has been reviewed and recommended for approval by the Deep Draft Navigation Planning Center of Expertise. It has been prepared in accordance with the referenced guidance, and public comments received will be incorporated into the plan as the study progresses. Independent External Peer Review is required for this study.

3. In accordance with reference 1.a., I hereby approve this review plan for the subject project study.

4. Please post the approved review plan with a copy of this memorandum to the District's public internet website and provide the internet address to the DDNPCX and Southwestern Division. Before posting to the District website, the names of USACE employees should be removed.

5. The SWD point of contact for this action is Mr. Saji Varghese, CESWD-PDP, at 469-487-7069.

Encl


THOMAS W. KULA
Brigadier General, USA
Commanding

CF:
CESWG-PE-PL (Laird)

REVIEW PLAN

BRAZOS ISLAND HARBOR, TEXAS CHANNEL IMPROVEMENT PROJECT FEASIBILITY REPORT

**U.S. Army Corps of Engineers
Galveston District**

December 2012

MSC Approval Date: 7 December 2012

Last Revision Date: June 2009



**US Army Corps
of Engineers®**

REVIEW PLAN

**Brazos Island Harbor, Texas
Channel Improvement Project
Feasibility Report**

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1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the Brazos Island Harbor (BIH), Texas Channel Improvement Project Feasibility Report.

b. References

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy change #1, 31 Jan 2010
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (5) Project Management Plan (PMP) for BIH Feasibility Report

c. **Requirements.** This review plan was developed in accordance with EC 1165-2-209, 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. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

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 either a Planning Center of Expertise (PCX) or the Risk Management Center, depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Deep Draft Navigation Planning Center of Expertise (DDNPCX).

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

3. STUDY INFORMATION

a. **Decision Document.** The BIH study will result in a decision document that is an Integrated Feasibility Report/National Environmental Policy Act (NEPA) document requiring Congressional authorization. The NEPA document could be an Environmental Impact Statement (EIS) or an Environmental Assessment (EA). The proposed study will address the feasibility of making channel improvements to the existing BIH project. The Approval level for the report is the Chief of Engineers, Headquarters, U.S. Army Corps of Engineers (HQUSACE).

b. **Study/Project Description.** The Port of Brownsville is located on the south Texas coast near the US-Mexico border. The Brownsville Navigation District is the financial representative for the Port of Brownsville and considered the non-Federal sponsor for this study. The study area encompasses the

entire Brazos Island Harbor and surrounding region. The entrance channel is located offshore of Cameron County, Texas, in the Gulf of Mexico and ends at the Port of Brownsville Main Harbor in the City of Brownsville. The most recent deepening was authorized by the Water Resources Development Act of 1986. The existing channel is 42-feet deep.

The Port of Brownsville is the only deep draft port available to the industry along the U.S. – Mexico border. Brownsville is primarily a bulk commodity port covering both liquid and dry cargo handling. Current vessel sizes associated with the increased use of container vessels has resulted in inefficient utilization of the Port of Brownsville. The increased traffic is a direct result of NAFTA (North American Free Trade Agreement) in that a majority of the increased commodity traffic is to meet industrial needs in Mexico.

Total tonnage on the Brazos Island Harbor increased from 1,829,000 tons in 1992 to 4,617,000 tons in 2010; a difference of 2,788,000 tons. In addition to traditional vessel traffic, there is a need for increased channel dimensions in order to serve offshore rigs presently operating in the U.S. Gulf Coast. The operational draft of the newer rigs ranges from 45 to 63 feet.

The study will look at ways to improve navigational efficiencies of BIH vessel and rig traffic, while minimizing environmental impacts to the greatest extent possible. A number of nonstructural and structural alternatives will be evaluated to determine the most economically feasible plan which will address the channel's navigational issues.

c. Factors Affecting the Scope and Level of Review. The peer review will focus on:

- Review of the planning process and criteria applied.
- Review of the methods of preliminary analysis and design.
- Compliance with client, program and NEPA requirements.
- Completeness of preliminary design and support documents.
- Spot checks for interdisciplinary coordination.

The following paragraphs discuss specific factors that will help determine the appropriate scope and level of review.

Based on baseline information on environmental resources in the project area and impacts identified to date, it is anticipated that a mitigated EA will be sufficient to identify and compare the environmental impacts of implementable alternatives. If significant impacts are identified as the study progresses, or if significant resource agency opposition to the proposed project develops, an Environmental Impact Statement will be prepared.

Project construction risks are believed to be relatively low since the potential for project failure is small, there is no new science involved in the project, and all predictions of outcomes have a low level of uncertainty. This project does involve public safety (life safety) concerns and does not involve significant threat to human life/safety assurance.

Other factors considered affecting the scope and level of review:

- The project involves no new science follows an established institutional process.

Consequently, the project is not expected to encounter any technical, institutional, or social challenges.

- The Governor of Texas is not requesting a peer review by independent experts.
- The project is not expected to cause significant public dispute with regard to its size, nature, or effects.
- The project is not expected to cause significant public dispute with regard to its economic or environmental costs and benefits.
- The project design will not involve precedent-setting methods, use innovative materials, or change prevailing practices.

d. In-Kind Contributions. Products and analyses provided by non-Federal sponsor as in-kind services are subject to DQC, ATR, and IEPR. The in-kind products and analyses to be provided by the non-Federal sponsor include:

- (1) Shoreline impact study by Port Contractor
- (2) Desktop Shoaling Study by Port Contractor
- (3) Core borings by Port Contractor

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 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 Major Subordinate Command (MSC).

a. Documentation of DQC. DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the BIH Channel Improvement Feasibility Study PMP. It is managed by the Galveston District and may be conducted by staff in the home district as long as they are not doing the work involved in the study, including contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan (QMP) providing for seamless review, quality checks and reviews, supervisory reviews, PDT reviews, etc. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices and the recommendations before approval by the District Commander.

Three DQC reviews are planned for this project. One DQC of the Tentatively Selected Plan (TSP) package will be conducted prior to the TSP Meeting. This review will be completed within 5 days. The DQC of the TSP package is scheduled to commence in January 2013. Another DQC of the draft report will be conducted once the draft report is completed in its entirety. This review will be completed within 5 days. The DQC of the draft report is scheduled to commence in April 2013. The last DQC will be conducted for the final report once it is submitted in its entirety. This review will also be completed in two weeks, including report revisions. The third DQC is scheduled to commence in July 2013.

DrChecks review software will be used to document all DQC comments, responses and associated resolutions accomplished throughout the DQC review process.

- b. **Products to Undergo DQC.** For the BIH Feasibility Study, non-PDT members and/or supervisory staff will conduct this review for major draft and final products, including products provided by the non-Federal sponsors as in-kind services following review of those products by the PDT.
- c. **Required DQC Expertise.** For the BIH Feasibility Study, non-PDT members and/or supervisory staff will conduct this review. A list of the DQC team members is included in Attachment 1. It is expected that the MSC/District QMP will address the conduct and documentation of this fundamental level of review.

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 correct and comply with published U.S. Army Corps of Engineers (USACE) guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district 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. The ATR team lead will be from outside the home MSC.

- a. **Products to Undergo ATR.** The ATR process is being conducted throughout the study process. ATR involvement will be conducted prior to major project milestones (Draft report milestone) and well as for the economic model and engineering documents. An ATR was completed for the draft report prior to the 2010 Feasibility Review Conference. The ATR team will perform periodic reviews of the feasibility study efforts, including the project assumptions, analyses, and calculations, as needed throughout the planning study process. The ATR will focus on the following:
 - Review of the planning study process,
 - Review of the methods of analysis and design of the alternatives and recommended plan,
 - Compliance with program and NEPA requirements, and
 - Completeness of study and support documentation
- b. **Required ATR Team Expertise.** The ATR is best conducted by experienced peers within the same discipline who are not directly involved with the development of the study or project being reviewed. Management of ATR reviews is conducted by professionals outside of the home district. For planning feasibility-level studies, the ATR is managed by the appropriate PCX with appropriate consultation with the allied Communities of Practice such as engineering and real estate. The DDNPCX is responsible for identifying the ATR team members. The Galveston District could provide suggestions on possible reviewers. The ATR team members will reside outside the Galveston District with the ATR team leader from outside the Southwestern Division. The ATR team has been identified and the names and disciplines of the ATR team are included in Appendix A of this document.

It is anticipated that the review team will consist of about nine reviewers, with one or more from each of the following disciplines: engineering design, hydraulics and hydrology, economics, environmental, real estate, plan formulation, operations and cost engineering. A brief description of the disciplines required for the ATR team is included below:

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	The Planning reviewer should be a senior water resources planner with experience in the reviewer(s) should have a strong knowledge in current planning policies and guidance related to feasibility studies.
Economics	The Economics reviewer should have a strong understanding of economic models or studies relative to deep draft navigation (e.g. multi-port, container and bulk cargo analyses).
Environmental Resources	The Environmental Resources reviewer should have strong background in coastal ecosystems (e.g. hypersaline, lagoonal, wind-tidal flat system), as well as Federal and Texas environmental laws and regulations.
Hydraulic Engineering	The Hydraulic reviewer should have extensive knowledge of hydrodynamic-salinity modeling, ship simulation, sediment, erosion and coastal shoreline impact modeling.
Civil Engineering	The Engineering reviewer should have extensive knowledge of channel design for deep draft navigation studies.
Cost Engineering	The Cost Engineering reviewer should have a strong knowledge of the cost estimating practices for deep draft navigation projects.
Construction/Operations	The Operations reviewer should have a strong knowledge in current operations of deep draft navigation projects.
Real Estate	The Real Estate (RE) reviewer should have knowledge in reviewing RE Plans for feasibility studies (e.g. navigation servitude) and must be selected from the RE CoP approved list of RE ATR reviewers.

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 been 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 then 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:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- 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 the TSP, draft report, and final report. 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 1165-2-209, 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 1165-2-209.

- Type II IEPR. Type II IEPR, or Safety Assurance Review, 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.** Due consideration was given to Paragraph 15 of EC 1165-2-209 as well as Appendix D of the same EC. We do not anticipate that other criteria, such as public safety concerns, significant controversy, a high level of complexity, and significant economic, environmental and social effects to the nation, innovative solutions, or life safety issues will trigger the requirement for IEPR. However, the total project costs for this project are estimated to be more than \$45 million, which is a mandatory IEPR trigger. Lastly, the project may not include an EIS. An Environmental Assessment may be prepared.
- **Mandatory IEPR Triggers** - EC 1165-2-209 identifies four mandatory triggers for Type I IEPRs:
 - Project is a significant threat to human life.
 - Where the estimated total cost of the project, including mitigation costs, is greater than \$45 million.
 - Where the Governor of an affected State requests a peer review by independent experts.
 - Where the Director of Civil Works (DCW) or the Chief of Engineers (CE) determines that the project study is controversial due to significant public dispute over either the size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

The estimated total cost of the project is more than \$45 million, which will trigger the need for IEPR. A peer review has not been requested by a Governor of an affected State. This project has not resulted in disputes over the size, nature, or effects of the project. Thus, the DCW and CE have not determined that the study is controversial.

- b. **Products to Undergo Type I IEPR.** Interim products for hydrology and hydraulics, economics, and environmental will be provided concurrent with the draft report is released for public review. The full IEPR panel will also review the entire draft feasibility report, environmental impact statement and all technical appendices.
- c. **Required Type I IEPR Panel Expertise.** IEPR panels will be made up of recognized independent experts from outside of USACE, with disciplines appropriate for the type of review being conducted. The PCX will contract with an Outside Eligible Organization (OEO), such as Battelle, to manage the review. About four IEPR panel members will be selected by the OEO using the National Academy of

Science's policy for selecting reviewers. Candidates can be nominated by USACE, public, or scientific or professional societies. A pool of potential reviewers will be evaluated by USACE to ensure no conflict of interest. Since this feasibility study is a deep draft navigation study, anticipated disciplines of IEPR reviewers are engineering (coastal), economics, and environmental. The IEPR panel review will be federally funded, including the costs associated with obtaining the IEPR panel contract. Responding to IEPR comments will be cost shared with the non-Federal sponsor.

IEPR Panel Members/Disciplines	Expertise Required
Economics	The Economics Panel Member should have experience in water resource economic evaluation or review, working directly for or with USACE, and have experience with Deep-Draft Navigation projects. The reviewer should also have experience reviewing federal water resource economic documents justifying construction efforts, an understanding of social well-being and regional economic development, and an understanding of traditional natural economic development benefits.
Environmental (Ecology)	The Ecology Panel Member should have experience in describing and evaluating the complex relationships and dynamics of coastal ecosystems and experience assessing the consequences of altering environmental conditions.
Environmental (NEPA Impact Assessment)	The NEPA Impact Assessment Panel Member should have experience in evaluating and conducting NEPA impact assessments, conducting cumulative effects analyses, as well as experience with complex multi-objective public. The reviewer should work projects with competing trade-offs and have experience in determining the scope and appropriate methodologies for impact assessment and analyses for a variety of projects with high public and interagency interest. The reviewer should also have experience determining the scope and appropriate methodologies for impact assessment and analyses for projects having impacts to nearby sensitive habitats.
Coastal Engineering	The coastal engineering reviewer should have extensive experience in estuarine systems and be familiar with USACE applications of standard coastal engineering processes.

d. Documentation of Type I IEPR. The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO and should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 4.d above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document and shall:

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions; and

- 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.

The final Review Report will be submitted by the OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

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 DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. 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).

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 following planning models are anticipated to be used in the development of the decision document: economic benefit models (e.g., HarborSym), environmental models for habitat evaluation or mitigation planning (e.g., IWRPlan, HEP HSI models), transportation or navigation models, and homegrown or spreadsheet models (e.g., excel spreadsheets, @Risk, etc; see EC 1105-2-412 for more information about what constitutes a planning model). Below are some examples of the type of information that might be included in this section (Note: Lesser known models, including local/regional models, will need a more complete description than widely used, nationally recognized models).

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HarborSym Deepening/Widening Models	A planning-level simulation model designed to assist in economic analyses of coastal harbors, calculating vessel interactions within the harbor, and capturing delays. The model output can be used to calculate the cost of these delays and any changes in overall transportation costs resulting from proposed modifications to the channel's physical dimensions or restrictions.	Certified/ATR only
Economic Spreadsheet Tabulation	Any benefits that cannot be evaluated in HarborSym will be analyzed in the subject spreadsheet model, specifically to include benefits related to oil rigs and the Section 6009 law. The purpose of this tabulation is to estimate vessel transportation costs and savings attributable to deepening BIH for such benefits.	ATR and One Time Model Approval for Use
HEP/HSI Models (Habitat Evaluation Procedure / Habitat Suitability Indices)	USFWS HEP evaluates the quality and quantity of available habitat for selected wildlife species. The HEP delivers Habitat Suitability Indices (HSI), which measure habitat suitability of a sample plot relative to optimum habitat suitability for a species in a defined region.	Certified

- b. Engineering Models.** The following engineering models are anticipated to be used in the development of the decision document: hydrologic, hydraulic, geotechnical, civil, structural, cost engineering and similar models. Below is an example of the type of information that might be included in this section.

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
TABS-MD Hydrodynamic Model	Model is designed to provide accurate and representative current velocity fields for use in ship simulator for navigation study	Certified
Hydrodynamic and Salinity Modeling using Adaptive Hydraulics numerical model code	A two-dimensional model, which provides input to ship simulation, estimate storm surge, and predict potential changes with a deeper and/or wider channel. Helps to predict potential salinity changes to the Laguna Madre hyper-saline bay system and navigation channel.	Certified

Storm Surge Model	Modeling of the effects of the improved channel on storm surge.	Certified
Gulf Shoreline Erosion	A model to assess the effect of channel modifications on local coastal wave conditions in the vicinity of the channel and at adjacent shores.	Certified
Ship Simulator	This model will simulate ship movement through various alternative scenarios. A two dimensional hydrodynamic model will be applied to the vicinity of the ship channel to generate currents for the ship simulator. The results will be used for determining a final design channel plan, which will be applied to the salinity models.	Certified
Mii - cost estimating model	Mii is the cost-estimating model used to develop cost estimates for projects.	Certified
Crystal Ball Risk Based Analysis	Crystal Ball software shall be used to conduct Cost Risk Analysis.	Certified

10. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.** The cost for ATR of the Feasibility Scoping Meeting (FSM) was approximately \$20,000. It is estimated that the ATR costs for the remainder of the study will be \$40,000. Because of the length of time since the last ATR review was completed, the ATR review team may no longer be available. The future ATR will require identification of a new review team.

TASK	Proposed Date
PCX identifies ATR team	April 2008 (actual)
ATR review of FSM documents	May 2008 (actual)
Update of Project Review Plan	November 2012
Coordinate with MSC and post Review Plan on website	December 2012
ATR review of draft documents	May 2013
ATR Certification Draft Report	June 2013
Public Review of Draft Report	May – June 2013
Agency Decision Milestone meeting	August 2013
Participation in CWRB	October 2013

- b. **Type I IEPR Schedule and Cost.** The cost for IEPR is estimated to be \$250,000. The PCX for Deep Draft Navigation will identify someone independent from the PDT to scope the IEPR and develop an Independent Government Estimate. The Galveston District will provide funding to the IEPR panel. IEPR will be conducted prior to the Civil Works Review Board/Agency Decision Milestone.

TASK	Date
IEPR Initiation	May 2013
IEPR backcheck/followup and Certification	June 2013
Chief of Engineer's IEPR Summary Report	August 2013

- c. **Model Certification/Approval Schedule and Cost.** All models anticipated to be used are already certified. The HarborSym model is certified and will require ATR only.

11. PUBLIC PARTICIPATION

Stakeholder and public comments are continually solicited. Public involvement section will be part of the Integrated Report and provided to ATR and IEPR reviewers.

A NEPA document specifically addressing potential impacts of the proposed plan for the BIH Channel Improvement Project must be submitted for public comment.

A Public Scoping Meeting was held in Brownsville, Texas on January 31, 2007. Resource agencies will be asked to participate in identifying potential sensitive resources and environmental issues and developing ways to address those issues. Public review is scheduled after the Draft Report Milestone and those comments will be summarized in the NEPA document with responses provided.

<u>TASK</u>	<u>START DATE</u>	<u>FINISH DATE</u>
Public Scoping Meeting	January 31, 2007 (actual)	January 31, 2007 (actual)
Resource Agency Meetings	May 2007 (actual)	TBD (in 2013)
Public Review of Draft Rpt.	May 2013	June 2013
Public Meeting for Draft NEPA doc.	June 2013	June 2013
Public Review of Final Rpt. & NEPA doc.	October 2013	November 2013

12. 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.

13. REVIEW PLAN POINTS OF CONTACT

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

- Ms. Sheri Willey, Galveston District PDT Planning contact at (409) 766-3917 or sheridan.s.willey@usace.army.mil
- Mr. Sam Arrowood, Southwestern Division at (409) 766-3970 or sam.a.arrowood@usace.army.mil
- Mr. Bernard Moseby, PCX Manager at (251) 694-3884 or bernard.e.moseby@usace.army.mil

ATTACHMENT 1: TEAM ROSTERS (Removed Prior to Posting on Webpage)

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 Feasibility Report for Brazos Island Harbor, Texas Channel Improvement Project. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-209. 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
ATR Team Leader
Office Symbol/Company _____ Date

SIGNATURE

Name
Project Manager
Office Symbol _____ Date

SIGNATURE

Name
Architect Engineer Project Manager¹
Company, location _____ Date

SIGNATURE

Name
Review Management Office Representative
Office Symbol _____ Date

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
Chief, Engineering Division
Office Symbol _____ Date

SIGNATURE

Name
Chief, Planning Division
Office Symbol _____ Date

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
11/9/12	Update to include compressed schedule including SMART Planning task. Also updated into Review Plan Template.	Throughout entire review plan.

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
ATR	Agency Technical Review	IEPR	Independent External Peer Review
BIH	Brazos Island Harbor	MSC	Major Subordinate Command
DCW	Director of Civil Works	NEPA	National Environmental Policy Act
DDNPCX	Deep Draft Navigation Planning Center of Expertise	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DQC	District Quality Control/Quality Assurance	OEO	Outside Eligible Organization
DX	Directory of Expertise	PCX	Planning Center of Expertise
EA	Environmental Assessment	PDT	Project Delivery Team
EC	Engineer Circular	PMP	Project Management Plan
EIS	Environmental Impact Statement	QMP	Quality Management Plan
ER	Engineering Regulation	RE	Real Estate
FSM	Feasibility Scoping Meeting	RMO	Review Management Organization
Home District/MS	The District or MSC responsible for the preparation of the decision document	USACE	U.S. Army Corps of Engineers
HQUSACE	Headquarters, U.S. Army Corps of Engineers		