



**DEPARTMENT OF THE ARMY**  
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS  
1455 MARKET STREET  
SAN FRANCISCO, CALIFORNIA 94103-1399

REPLY TO  
ATTENTION OF

CESPD-PDC

18 Dec 2012

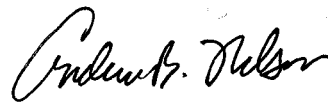
MEMORANDUM FOR Commander San Francisco District, US Army Corps of Engineers, ATTN:  
CESPN-PM-C (Mr. Arden Sansome)

Subject: Review Plan Approval for the San Francisco Bay to Port of Stockton General  
Reevaluation Report (GRR)

1. Reference. Deep Draft Navigation Planning Center of Expertise (DDNPCX) Memo Subject:  
Review Plan Approval, San Francisco Bay to Port of Stockton (Encl 1).
2. The DDNPCX has reviewed the review plan, finds it has been prepared in accordance with  
EC 1165-2-209 and recommends approval (reference above). The updated review plan has  
also been coordinated with the San Francisco District Support Team (Encl 2).
3. The Review Plan includes independent external peer review.
4. I hereby approve this Review Plan, which is subject to change as circumstances require,  
consistent with project development under the Project Management Business Process.  
Subsequent revisions to this Review Plan or its execution will require new written approval from  
this office.
5. For any additional information or assistance, contact Paul Devitt, District Support Team Lead,  
(415) 503-6558, Paul.A.Devitt@usace.army.mil

***Building Strong All The Way From New Mexico To The Pacific!***

Encl

*for*  COL, EN  
MICHAEL C. WEHR  
BG, USA  
Commanding  
Acting Col

# **REVIEW PLAN**

**San Francisco Bay to Port of Stockton  
John F. Baldwin Ship Channel Phase III  
Navigation Improvement Project**

**General Reevaluation Report**

**Contra Costa County, California**

**SAN FRANCISCO DISTRICT  
U.S. Army Corps of Engineers**

**MSC Approval Date: 18 Dec 2012**

**Last Revision Date:**



**US Army Corps  
of Engineers ®**

## REVIEW PLAN

### San Francisco Bay to Port of Stockton John F. Baldwin Ship Channel Phase III Navigation Improvement Project

Contra Costa County, CA

### General Reevaluation Report

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## **PURPOSE AND REQUIREMENTS**

**Purpose.** This Review Plan defines the scope and level of peer review for the current General Reevaluation Report (GRR) for the San Francisco Bay to Port of Stockton, John F. Baldwin Ship Channel Phase III Navigation Improvement Project located in Contra Costa County, California.

### **References**

Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010  
EC 1105-2-40, Water Resources Policies and Authorities Review of Decision Documents, 22 Aug 2008  
EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011  
Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006  
ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007

**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).

## **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 (RMC), 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) located at USACE's Mobile District in Alabama. 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.

## **STUDY INFORMATION**

**Decision Document.** The authorized study name of this Review Plan's General Reevaluation Report is the San Francisco Bay to Port of Stockton, John F. Baldwin Ship Channel Phase III Navigation Improvement Project located in Contra Costa County, California. The purpose of the GRR is to document and present the analyses that will lead to a recommended plan as authorized by the River and Harbor Act of 1965, 89-298, Section 301, Pub. L. No. 79 Stat. 1073, 89th Congress, 29 October 1965 and subsequently the Energy and Water Development Appropriation Act of 1998, Pub L. No.105-62. The recommended plan will be based upon environmentally acceptable measures, sound engineering and construction, and

reasonably maximized net NED economic benefits. The broad goals of the recommended plan are to 1) ensure safety for both present and future waterborne vessels traversing the John F. Baldwin Ship Channel, 2) increase efficient operations of vessels by reducing tidal delays and lightering, and 3) provide savings in waterborne commerce transportation costs.

Due to the complexity and scope of the various analyses, this GRR will require approval by HQUSACE, Chief of Engineers. Also, the location of the proposed project through the San Joaquin River Delta will result in the need for a full Environmental Impact Statement as required by the National Environmental Policy Act, in conjunction with a full Environmental Impact Report as required by the California Environmental Quality Act

### **Study/Project Description.**

Phase I of the John F. Baldwin Ship Channel project (JFB) resulted in the construction of the San Francisco Bar Channel in 1974. The project created the Pacific Ocean offshore approach channel to the San Francisco Bar Channel Entrance. This shipping channel (55 ft deep—mean lower low water (MLLW) and 2000 ft wide) serves as the exclusive deep water ocean entrance to the San Francisco Bay. Completed in 1986, Phase II of the project deepened the central San Francisco Bay channel to -45 ft MLLW. Phase IV consisted of deepening the Stockton Deep Water Channel to -35 ft MLLW in 1988.

Based upon a 1965 Congressional authorization, Phase III of the project called for deepening from -35 ft to -45 ft MLLW. However, the 1997 GRR resulted in a recommended plan of a crude oil pipeline, after consulting with South Pacific Division and HQUSACE and determining that the authorization language was flexible enough to recommend a pipeline alternative. This proposed pipeline project was ultimately never built.

The pipeline alternative was developed as a substitute for channel deepening. The 1997 GRR documents that as the result of an Issue Resolution Conference in April 1997, that SPN and SPD requested a Chief of Engineers concurrence that the Richmond Marine Link Pipeline System fell under the congressional authorization by meeting the following criteria: 1) the pipeline alternative would serve the same petroleum companies as would a channel deepening; 2) similar benefits (transportation cost savings) would be realized; 3) the pipeline alternative avoided negative impacts, including salinity intrusion, endangered species, and dredge material placement issues; 4) the pipeline alternative cost substantially less than channel deepening; and 5) there was no local support for a channel deepening alternative.

This is not the case currently. In addition to the petroleum companies along the federal channel seeking transportation efficiencies, the Port of Stockton has grown substantially since the mid-1990s (much due to its acquisition of Rough & Ready Island from the Department of Navy in 2000) and is now keenly interested in obtaining the maximum depth authorized.

The 1988 Congressional authorization once again addressed the Stockton Deep Water Channel by directing that investigations begin to determine the feasibility of deepening that section of the JFB project (Phase IV) to -40 ft MLLW.

Thus, the current GRR being conducted will be addressing a single purpose project of deep draft navigation for the original Phase III stretch of channel up to -45 ft MLLW and the Stockton Deep Water Channel up to -40 ft MLLW. These deepening alternatives will be conducted in 2 and 3 foot intervals. Moreover, the pipeline alternative will also again be evaluated as it would avoid many of the challenges caused by channel deepening (environmental effects due to salinity intrusion into the Delta still being a concern).

Figure 1: San Francisco Bay to Stockton Overview Map

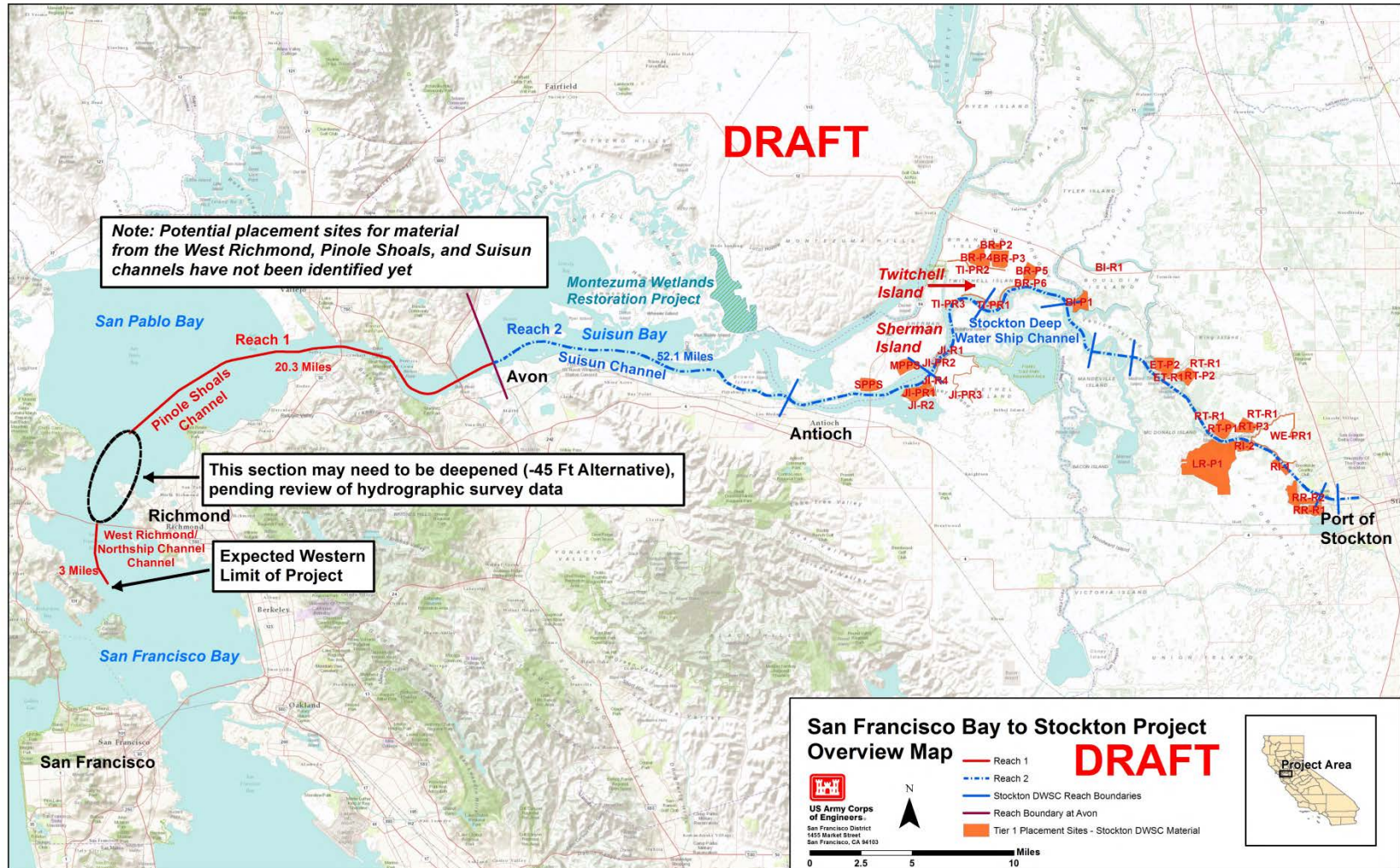




Figure 2: SF Bay to Stockton with Reaches



Figure 1. Proposed San Francisco to Stockton Deep Draft Channel



Figure 3: Potential Levee Problem Areas



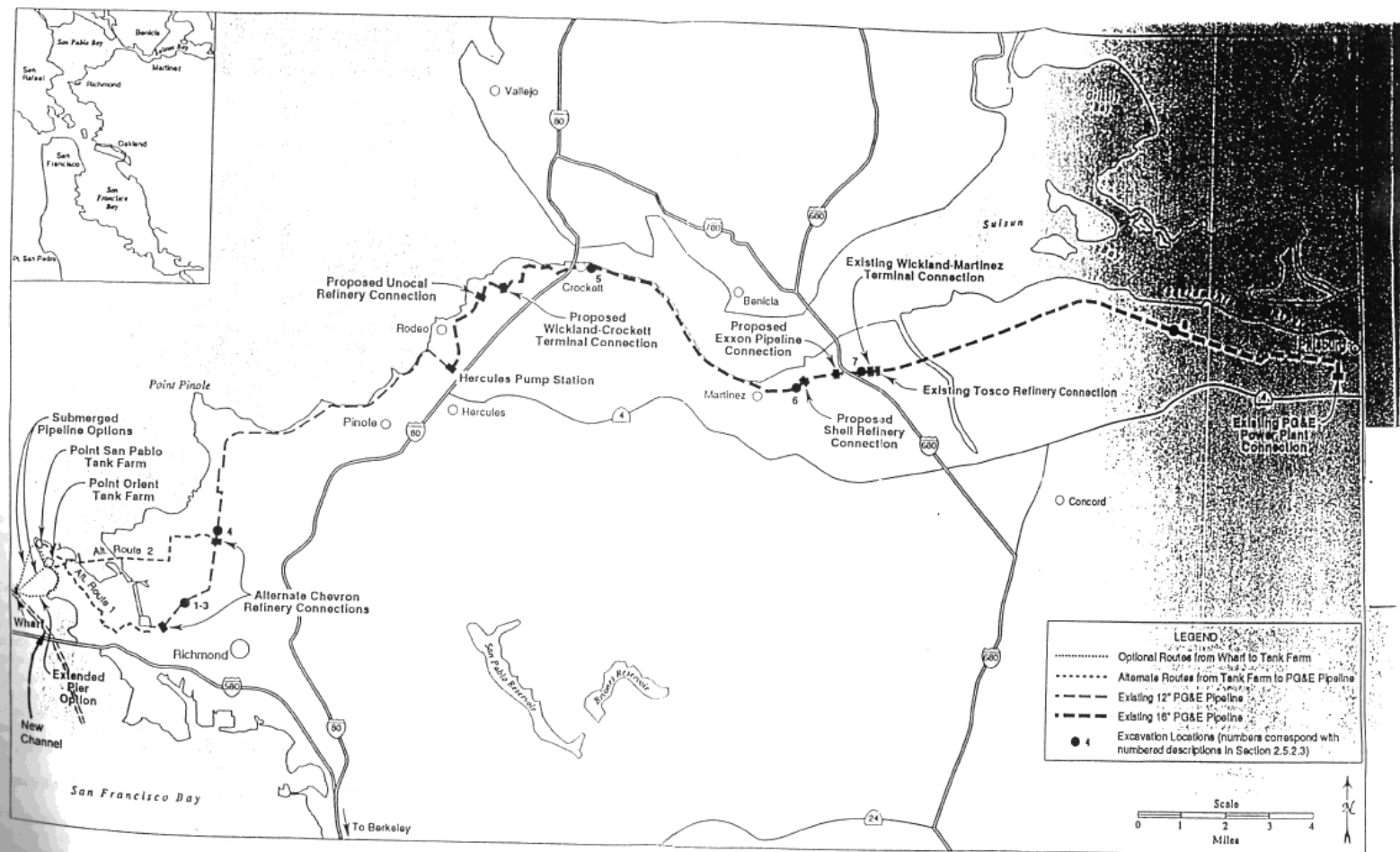


Figure 3-4  
LOCATION OF PIPELINE PROJECT FACILITIES

### **Factors Affecting the Scope and Level of Review.**

There are likely to be several challenging issues as a result of the analyses conducted for this GRR. First and foremost will be environmental concerns, both state and federal. The proposed project would go through the ecologically sensitive San Joaquin River Delta. Additionally, channel deepening would allow saltwater to flow further upstream and thus potentially endanger several protected and/or endangered species and aquatic habitat. Thus, close and extensive coordination will have to be conducted between USACE environmental scientists, engineers, and a variety of resource agencies.

Another risk factor will be locating adequate placement sites for upwards of 20 million cubic yards of dredged material. Of course, the distance of placement sites from the channel will be a significant determinant of overall costs; and with scarcer federal and state funding to pay for a project that will in all likelihood run into the \$175 million to \$225 million range.

Much of the San Joaquin River Delta's farmland is kept dry by the levees that channel the river from Stockton to San Francisco Bay. Thus, any modifications to foundation loads along the channel banks whether on the surface (e.g., raising existing levees) or underwater (e.g., cutting channel slope toes) would have to be done carefully to prevent slope instability that might cause flooding to the adjacent crops, buildings, people and public infrastructure. Moreover, a breach could result in a change of the overall salinity concentration in the San Joaquin River Delta.

Though the Port of Stockton seems to have weathered the Great Recession rather well (as their recent annual reports show), the national economy is still fragile. Should demand for the products coming into Stockton fall or if the world economy stalls and no longer demands US exports, the transportation costs savings that lead to economic feasibility (i.e. that benefits exceed costs) might not be forecast to materialize.

In summary, the most pressing and apparent risks and uncertainties relate to minimizing adverse effects to ecological resources, finding engineering techniques to minimize salinity intrusion into Delta waters, maintaining levee safety and integrity during and after construction, using dredge material for beneficial use while also keeping project costs down, and demonstrating the current and future economic viability of the Port of Stockton as it pertains to national and world demand of products crossing its wharfs.

### **In-Kind Contributions.**

Products and analyses provided by non-Federal sponsors 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: at the present time, no major study products or analyses are anticipated by the non-Federal Sponsor (Contra Costa County, CA). Should the Sponsor later identify any such analyses and/or products, this portion of the Review Plan will be revised to reflect that and discuss the USACE guidance documents provided for their proper development. Any such products will also be properly reviewed by USACE and or independent peer reviewers.

## **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) of which this RP is a component. The home district shall manage DQC. Documentation of DQC activities is required and will be in accordance with the Quality Management Plans (QMP) of the District and the home Major Subordinate Command (MSC).

### **Documentation of DQC.**

DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements. It is managed in the San Francisco District and may be conducted by in-house staff as long as the reviewers are not doing the work involved in the study, including contracted work under review. Basic quality control tools include a QMP providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (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 the approval by the District Commander. 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, and products provided by contractors following review of those products by the PDT. Each PDT section chief shall, at a minimum, provide the ATR member with an email or memo that stipulates that minimum requirements for that technical appendix or report have been met. The MSC/District QMP will address the conduct and documentation of this fundamental level of review.

## **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 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, selected by the RMO, and may be supplemented by outside experts as appropriate. Candidates for the ATR team will not be nominated by the home district/MSC. The ATR team lead will be from outside the home MSC.



## **Products to Undergo ATR.**

The Feasibility Scoping Meeting (in South Pacific Division called “an F3”) package will be subject to ATR. This Milestone generally documents the Without Project (or Baseline) conditions that currently exist in the project study area and are expected to exist in the future without a Federal project in place. As such, several preliminary technical appendices will be subject to ATR, including the following study disciplines: hydrology and hydraulics engineering, civil design, geo-technical engineering, environmental resources, environmental science (potential Hazardous, Toxic, and Radioactive Waste issues), cultural resources, GIS, hydrosurvey, real estate, economics, and plan formulation.

The Alternative Review Conference (a SPD-specific Milestone referred to as “an F4”) package will be subject to ATR. This Milestone deals with evaluation of final alternatives, coordination and consensus with South Pacific Division Planning and Policy team members, and anticipates Alternatives Formulation Briefing issues that would be discussed with HQUSACE. In addition to all of the sections listed above, at this point preliminary real estate acquisition plans and any preliminary environmental impacts analyses shall be subject to ATR

The Alternative Formulation Briefing (called the AFB or FA Milestone) will be subject to ATR. The purpose of the AFB is to confirm that the plan formulation and selection process, the tentatively selected plan, and the definition of Federal and non-Federal responsibilities are consistent with applicable laws, statutes, Executive Orders, regulations and current policy guidance. The goal is to identify and resolve any legal or policy concerns that would otherwise delay or preclude Washington-level approval of the draft report, and to allow the districts to release the draft report to the public concurrent with the Headquarters policy compliance review of the draft report. Accordingly, all draft technical section appendices will be ATR’ed. Moreover, the real estate Gross Appraisal Report and the Draft EIS/EIR will be reviewed. Finally, a detailed review of the plan formulation/main report will be conducted to ensure technical compliance with ER 1105-2-100, with particular emphasis that the main report matches the technical appendices.

Similar ATR reviews shall be conducted per the previous paragraphs for the Draft Report and Final Chief’s Report. HQUSACE is responsible for establishing technical, policy, and legal compliance requirements for specific projects, and providing final compliance documentation for Washington-level decision makers, generally the Chief of Engineers, ASA(CW), OMB, and Congress. The HQUSACE team is responsible for confirming the policy and legal compliance planning products; supporting the resolution of issues requiring HQUSACE, ASA (CW) or OMB decisions; continuously evaluating the overall project development process, including the peer review and policy compliance processes (including responsibilities delegated to MSCs); and recommending appropriate changes when warranted.

**Required ATR Team Expertise.**

<b>ATR Team Members/Disciplines</b>	<b>Expertise Required</b>
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR for Deep Draft Navigation studies. 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 Deep Draft Navigation studies. Accordingly, the Planner should be someone currently in a coastal USACE district or served previously as a senior Planner in such district.
Economics	The Economics reviewer should be a senior regional economist with experience in conducting Deep Draft Navigation Studies. In particular the economist reviewer should be experienced in assessing commodity forecasts and vessel fleet forecasts, with additional knowledge of navigation/maritime economics principles and distribution areas for benefiting commodities
Environmental Resources	The Environmental reviewer should be a senior environmental scientist with particular skills to communicate, negotiate, and coordinate with a plethora of federal, state, regional and local resource agencies.
Cultural Resources	The Cultural Resources reviewer should be a senior planner with particular experience in dealing with the State Historical Preservation Office and its particular laws and regulations.
Water Resources/Coastal Engineering	The Water Resources engineer reviewer should be a senior engineer with experience in Deep Draft Navigation studies and particular experience in salinity intrusion and hydrodynamic engineering models.

Geotechnical Engineering	The geotechnical engineer reviewer should be a licensed senior engineer with experience in Deep Draft Navigation studies, with particular experience in evaluating levee and bank performance and safety in a seismically active region.
Civil Engineering	The civil engineer reviewer should be a senior engineer with experience in designing and modifying deep draft channels, as well as with dredging practices to assist in identifying the required proper equipment and develop the construction schedule. The civil engineer review should also have experience evaluating ship simulation reports.
Cost Engineering	The cost engineer reviewer will be a member of the Cost DX located in Walla Walla District
Construction Engineer	The construction engineer reviewer should have experience in identifying issues (constraints/solutions) related to levee construction within a wet soil environment.
Real Estate	The real estate reviewer should be an experienced real estate team member with particular experience in dealing with the unique aspects of the real estate market.
Hazardous, Toxic and Radioactive Waste (HTRW)	The HTRW reviewer should have significant experience in identifying and assessing the impacts to the study should HTRW sites be found in the potential project area and familiarity with any particular laws pertaining to such
GIS (Geospatial Community of Practice)	The GIS/Geospatial reviewer should have experience in the preparation of real estate maps and related spreadsheets (e.g., tract registers). The GIS reviewer should have an understanding of key environmental issues in the San Joaquin River Delta area, and how geospatial data can be used to assess potential environmental impacts. In addition, the GIS reviewer should be familiar with the SDSFIE standards for geospatial data. The GIS reviewer should also have expertise in vertical datums compliance.

**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:

The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;

The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;

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  
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 Leader 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 AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

### **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, plan formulation, real estate issues and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated safety assurance shall be addressed during project implementation per EC 1165-2-209.

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.

### **Decision on IEPR.**

Per the Engineering Circular 1165-2-209, this GRR project will exceed \$45 million in total project costs and thus will require a Type I IEPR. The public, including scientific or professional societies, will not be asked to nominate potential external peer reviewers. Additionally, the study will require an EIS, several study aspects (see above) will be complex, and there is likely to be disagreement between various stakeholders during the study.

**Products to Undergo Type I IEPR.**

IEPR will be performed no later than for the Draft Report. However, if funding and schedule allow, IEPR will be performed as early as the Alternatives Review Conference on technical appendices largely or completely finished. In addition to reports and appendices, PDT members will provide the IEPR team with all raw data (not subject to confidentiality agreements), models, and documents used to conduct each individual analysis. The IEPR review team should be able to re-run, calibrate and verify the results of all models and have access to the resulting reports and appendices.

**Required Type I IEPR Panel Expertise.**

<b>IEPR Panel Members/Disciplines</b>	<b>Expertise Required</b>
Economics: Navigation/Maritime specialist	The Economics Panel Member should be experienced with all applicable USACE economics and guidance. The member should have experience with complex Microsoft Excel spreadsheets as well as the IWR software named HarborSym. The member should be experienced in acquiring, analyzing, and reporting on large and complex data sets pertaining to commodities and vessel characteristics, as well as distribution analysis and forecasting.
Environmental	The Environmental Panel Team Member should be a NEPA Compliance Expert with experience as a Fisheries Biologist. The member should also have experience in the laws and regulations contained in CEQA.
Engineering	The Engineering Team Members should include: coastal (with significant experience in sediment transport and salinity intrusion modeling), geo-technical (with significant experience in channel slope and levee performance evaluation in a seismically active region), and civil (with significant experience in dredging techniques, navigation channel design, and ship simulation modeling).
Planner/Plan Formulator	The Planner should be experienced with all applicable USACE guidance concerning the USACE plan formulation (Six Step Planning Process and SMART Planning) pertaining to deep draft navigation projects to ensure that a sufficient

	number of alternatives have been properly evaluated.
Real Estate Manager	The Real Estate reviewer should be experienced with the laws and regulation covering Federal processes of acquiring real estate interests. Specifically, this reviewer should also have knowledge of California real estate laws.

**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. No candidates for the IEPR panel will be nominated by the Corps of Engineers. 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 the district and PCX websites, through electronic means on the internet.

#### **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.

#### SAFETY ASSURANCE AND REVIEW (SAR).

In accordance with Section 2035 of Water Resources Development Act (WRDA) of 2007, EC 1105-2-410 requires that all projects undergo a safety assurance review of the design and construction activities prior to initiation of physical construction and periodically thereafter until construction activities are completed on a regular schedule sufficient to inform the Chief of Engineers on the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring public health, safety, and welfare. The decision document phase is the initial design phase; therefore, EC 1105-2-410 requires that safety assurance factors be considered in all reviews for decision document phase studies. As part of the decision document phase a PMP covering the scope and schedule for PED and construction of any recommended plan will be developed along with an associated Review Plan for those phases of project development.

Provisions for the SAR will be incorporated into this PMP/Review Plan, and a SAR team will be established for the PED and construction phase. The project manager will coordinate with the Review Management Organization (RMO) to develop the review requirements and to include them in the Review Plan. The RMO for SAR's is the USACE Risk Management Center. The SAR team shall perform reviews and site visits in accordance with milestones identified in the Review Plan. Milestones to consider for an SAR are at the record of final design in the Design Documentation Report; at the completion of the plans, specifications, and cost estimate; at the midpoint of construction for a particular contract, prior to final inspection, or at any critical design or construction decision milestones. The SAR panel may recommend to the RMO additional or alternate milestones. The MSC should approve these recommendations when they are warranted and reasonable.

The Engineering Team Members to conduct this Safety Assurance Review should include: a hydrologist, a hydraulics engineer, and a coastal engineer, a geo-technical engineer and a civil engineer. The team should all be senior/experienced engineers with the same types of expertise in their field, as described in the IEPR team table. This type of review typically costs between \$100,000 and \$200,000. As the project gets closer to the PED and construction phase, the appropriate team members and cost estimate required will be refined.

#### **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 For development of construction schedules and contingencies for all documents requiring Congressional authorization? The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.



## **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).

**Planning Models.** The following planning models are anticipated to be used in the development of the decision document:

<b>Model Name and Version</b>	<b>Brief Description of the Model and How It Will Be Applied in the Study</b>	<b>Certification / Approval Status</b>
HarborSym (Economics)	The Institute for Water Resources (IWR) program provides the capability to integrate commodity forecasts, vessel characteristics, and port capacities to evaluate various channel improvement measures that will reduce transportation savings costs using risk-based methods. The program will be used to evaluate and compare the future without- and with-project plans along the JFB Ship Channel to identify the NED plan and compare to others analyzed alternatives	Certified
Regional Economic System (RECONS) (Economics)	This regional economic impact modeling provides accurate and defensible estimates of regional economic impacts associated with Corps spending. This modeling tool automates calculations and generates estimates of jobs and other economic measures such as income and sales associated with USACE's annual Civil Work program spending, as well as stemming from effects of additional economic activities (for example, water transportations, tourism spending, etc) associated with USACE's core programs. .	Certified
IWR Planning Suite 2.0	Contains an "annualizer"	Certified

(Economics)	module that allows for easy calculations of equivalent annual average values, total net values, annualizing non-monetary benefits, and calculating various economic costs (including interest during construction)	
Section 902 Analysis Certified Tool (Economics)	Section 902 of the Water Resources Development Act (WRDA) of 1986 defines the maximum amount that a project may cost. This is often called the 902 Limit or Project Cost Cap. It is, "The maximum project cost limit imposed by Section 902 is a numerical value specified by law which must be computed in a legal manner (ER 1105-2-100 Appendix G)." This tool assists with this calculation.	Certified
Habitat Equivalency Analysis (HEA)—developed by NOAA (Environmental Resources)	HEA was designed for impacts and damage to coral reef environments; however, HEA can be used for any community type where data can be gathered about the habitat - the before impact. In these cases, data gathered before and during impact can be used to develop a proposed mitigation and calculate a time to recovery. It has been applied around the country in freshwater and estuarine systems.	In Review at the PCX-Ecosystem Restoration

<p>HEC-EFM: Ecosystem Functions Model (Environmental Resources)</p>	<p>The Ecosystem Functions Model (HEC-EFM) is designed to help study teams determine ecosystem responses to changes in the flow regime of a river or connected wetland. HEC-EFM analyses involve: 1) statistical analyses of relationships between hydrology and ecology, 2) hydraulic modeling, and 3) use of Geographic Information Systems (GIS) to display results and other relevant spatial data.</p>	<p>In Review at the PCX-Ecosystem Restoration</p>
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**Engineering Models.** The following engineering models are anticipated to be used in the development of the decision document:

<p><b>Model Name and Version</b></p>	<p><b>Brief Description of the Model and How It Will Be Applied in the Study</b></p>	<p><b>Approval Status</b></p>
<p>UnTRIM Bay-Delta Model (Coastal Engineer)</p>	<p>UnTRIM is one of the most updated three dimensional hydrodynamic and salinity models, and has been applied to develop a San Francisco Bay and Delta system model. The UnTRIM model package, including SWAN and SediMorph models, has been approved for use for the South San Francisco Bay Shoreline Study and San Francisco Bay Regional Dredged Material Management Plan (DMMP) related projects. UnTRIM calculates 3-D flow fields, salinity, and water surface elevation. SWAN calculates wind waves and SediMorph calculates</p>	<p>Allowed for Use</p>

	sediment transport pattern.	
GeoStudio 2007 or UTEXAS (Geotechnical Engineer)	2D model of a cross-section with soil properties to be used for seepage, and static and seismic slope stability analyses	Accepted by USACE

## **REVIEW SCHEDULES AND COSTS**

### **ATR Schedule and Cost.**

At a minimum, each of the previously identified “F” milestones should be scheduled 3 weeks for review, reply, backcheck, and close-out. Using \$100/hr for a GS-12 or 13 reviewer seems appropriate. A good estimate would be \$5000 - \$10000 per discipline. Thus, the F3, F4, and F4a should be funded (for an 8-10 member ATR team) approximately \$40,000 - \$80,000 each for a study with the anticipated scope of this GRR.

Hopefully, by the Draft and Final Reports the team has corrected all issues or agreed upon other solutions. Thus, for these two Milestones, the estimate would expect to fall between \$15,000 - \$25,000 each

### **Value Engineering Schedule and Cost**

Between the F3 (FSM) Milestone and the F4A (Alternatives Formulation Briefing) Milestone, the SPN Value Engineering Officer (currently Syed Burney) will be consulted in accordance with ER 11-1-321 Change 1. In civil works, engineering regulations require VE studies during feasibility and planning phases where multiple alternatives are under evaluation. Civil works projects must also be studied once the preferred alternative is selected and entered into planning and execution documentation.

The Value Engineering study is described within ER 11-1-321 Change 1 and refers to the guidance within the adopted ASTM standards and the value standard of the SAVE International body of knowledge. SAVE International defines a VE study as comprising six distinct steps: information gathering, function analysis, creative idea generation, evaluation of ideas, alternative development, and alternative presentation. The scope and scale of a VE workshop should be carefully matched to the project under study. The workshop itself should be a minimum of three days to accomplish the job plan described above. Large or complex projects require a correspondingly longer workshop to address the expanded work scope. In addition to the workshop, a VE study includes pre- and post-workshop tasks. Pre-workshop tasks include determining the study scope, schedule, team size and composition, and retrieving pre-study project data and documents for team review including project scope, cost, schedule, and risk management plans. Post-workshop tasks include report review and comment, scheduling and holding implementation meetings, resolution of outstanding technical issues, and preparation and distribution of the final report.

An effective VE study will result in:

- Validating key project decisions
- Keeping the project within budget
- Reducing operation and maintenance activities and their costs
- Improving project performance, function, and quality

- Reducing design and construction problems
- Insuring that client needs are given top priority throughout the project

[ER 11-1-321 Change 1](#) includes a discussion of baseline cost and functions for a Value Engineering study. The estimate was generated by averaging overall costs and durations of studies completed around the publication date of Change 1. **The rough cost average was \$65,000 for a 3-5 day Value Engineering study. This average should be used as a baseline or as a starting point.** The budget and duration should be adjusted depending on the complexity, schedule, and other project aspects to ensure adequate funding to support compliance with the VE standard. Of equal importance, the study must be properly resourced to achieve the desired return on investment.

### **Type I IEPR Schedule and Cost.**

Due to the more rigorous and independent nature of this type of review, the schedule should allocate 3 months at a minimum.

A reasonable cost estimate (in all likelihood to be negotiated in a contract) would be in the range of \$150,000 - \$200,000

### **Model Certification/Approval Schedule and Cost.**

All planning models used will be corporate “certified” models that do not require certification. The corporate models, however, have to undergo ATR, that typically range from \$5,000 to \$10,000. .Should any models be needed that must be vetted by a PCX, a schedule of at least 4 to 7 months should be anticipated. An estimated budget of \$30,000 - \$45,000 for the model review plan and model certification would typically cover costs of coordination with HQUSACE by the PCX personnel, as well as pay for the necessary reviewers.

### **PUBLIC PARTICIPATION**

The primary opportunities for public participation of the GRR will be when various NEPA documents are released for public comment. Otherwise, public meetings will be conducted soon after the various “F” Milestones in conjunction with Contra Costa County and/or the Port of Stockton. Public comments will be addressed during the study process. All NEPA comments--whether or not environmental/ecological in nature--will be provided to PDT members most qualified to respond. All Final Decision documents will be published on USACE and non-Federal sponsor websites. All requests for hard copies will be provided to interested parties.

### **REVIEW PLAN APPROVAL AND UPDATES**



The South Pacific 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.

### **REVIEW PLAN POINTS OF CONTACT**

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

Arden Sansom, Planning/Regional Economist, San Francisco District, (415) 503-6748

Leigh Skaggs, Division Plan Formulator, South Pacific Division, (415) 503-6588

Johnny Grandison, DDNPCX Review Manager, Mobile District, (251) 694-3804

**ATTACHMENT 1: USACE PROJECT DELIVERY TEAM ROSTER**

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Arden Sansom	USACE	Econ/Plan Form	<a href="mailto:Arden.K.Sansom@usace.army.mil">Arden.K.Sansom@usace.army.mil</a>	(415) 503-6748
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Bonivee Delapaz	USACE	Realty Specialist	<a href="mailto:Bonivee.A.Delapaz@usace.army.mil">Bonivee.A.Delapaz@usace.army.mil</a>	(415) 503-6745
Paul Mason	USACE	Cost Engineer	<a href="mailto:Paul.J.Mason@usace.army.mil">Paul.J.Mason@usace.army.mil</a>	(415) 503-6880

**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 General Reevaluation Report for the San Francisco Bay to Port of Stockton, John F. Baldwin Ship Channel Phase III Navigation 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 DrChecks<sup>sm</sup>.

X \_\_\_\_\_

To Be Determined by DDNPCX

Date

ATR Team Leader

CESAM-PD-FE

X \_\_\_\_\_

Glen Mitchell

Date

Project Manager

CESPN-PM-A

X \_\_\_\_\_

Johnny Grandison

Date

Review Management Office

Representative

CESAM-PD-FP

**CERTIFICATION OF AGENCY TECHNICAL REVIEW**

Significant concerns and the explanation of the resolution are as follows: TBD by actual reviews.

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

X \_\_\_\_\_

Lyn Gillespie

Date

Acting Chief, Engineering  
Division

CESPN-ET-E

X \_\_\_\_\_

Thomas Kendall

Date

Chief, Planning Branch

CESPN-ET-P

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>

#### ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
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
DX	Directory of Expertise	OEO	Outside Eligible Organization
EA	Environmental Assessment	OSE	Other Social Effects
EC	Engineer Circular	PCX	Planning Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
ER	Ecosystem Restoration	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law

FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MSD	The District or MSD responsible for the preparation of the decision document	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act