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

REPLY TO
ATTENTION OF

CESPD-DE

29 JUL 2016

MEMORANDUM FOR Commander, US Army Corps of Engineers, Los Angeles District, 915 Wilshire Blvd, Los Angeles, CA 90017 (ATTN: CESPL-PM-N, Ms. Susan Ming)

Subject: East San Pedro Bay Ecosystem Restoration Feasibility Study Review Plan Approval

1. The U.S. Army Corps of Engineers Los Angeles District's East San Pedro Bay Ecosystem Restoration Feasibility Study Review Plan that is enclosed is in accordance with Engineering Circular (EC) 1165-2-214, Review of Decision Documents, dated 15 Dec 2012. The South Pacific Division, Planning and Policy Division, Regional Business Technical Division, and Los Angeles District Support Team have reviewed the Review Plan that has been submitted. The South Pacific Division approves the subject Los Angeles District's East San Pedro Bay Ecosystem Restoration Feasibility Study Review Plan. The National Ecosystem Restoration Planning Center of Expertise will serve as the Review Management Organization.

2. With MSC approval the Review Plan will be made available for public comment via the internet and the comments received will be incorporated into future revisions of the Review Plans. The Review Plan includes Independent External Peer Review Type I Review.

3. I hereby approve the Review Plan which is subject to change as study circumstances require. This is consistent with study development under the Project Management Business Process. Subsequent revisions to the Review Plan after public comment or during project execution which meet the criteria in EC 1165-2-214 will require new written approval from this office.

4. Points of contact for this action are Ms. Judy McCrea, CESPD-DD-P, 415-503-6854, judy.p.mccrea@usace.army.mil and Mr. Paul Bowers, CESPD-PDC, 415-503-6556, paul.w.bowers@usace.army.mil .

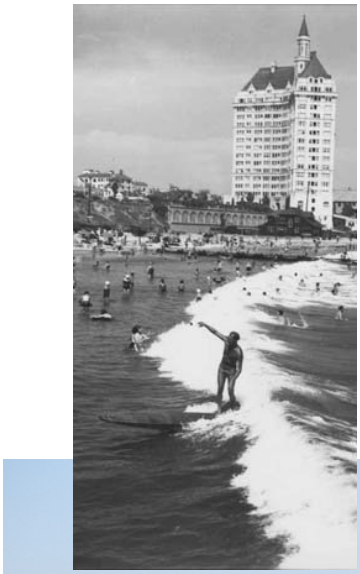
**BUILDING STRONG *and Taking Care of People!***

Encl

R. MARK TOY
Brigadier General, USA
Commanding

# APPENDIX A: REVIEW PLAN

## East San Pedro Bay Ecosystem Restoration
## Feasibility Study



## Los Angeles District

PCX Endorsement Date: 21 June 2016
MSC Approval Date: Pending
Last Revision Date: 13 July 2016

US Army Corps of Engineers ®

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# 1. PURPOSE AND REQUIREMENTS

**a. Purpose.** This plan defines the scope and level of peer review for the East San Pedro Bay, Long Beach, California Integrated Feasibility Report and Environmental Impact Statement (IFR/EIS).

**b. References**

- Engineer Circular (EC) 1165-2-214, Civil Works Review Policy, 15 December 2012
- EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
- Engineer Regulation (ER) 1110-1-12, Quality Management, 30 September 2006
- ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- Cost and Schedule Risk Analysis Guidance, 17 May 2009
- District (2003) and Division (2002) Quality Management Plans

**c. Requirements.** This plan was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, rehabilitation, and replacement (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 reviews, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

# 2. REVIEW MANAGEMENT ORGANIZATION COORDINATION

The Review Management Organization (RMO) is responsible for managing the peer review effort described in this plan. The RMO for this study is the National Ecosystem Restoration Planning Center of Expertise (ECO-PCX). The ECO-PCX will ensure the appropriate expertise is included on the review teams. The decision documents prepared for the East San Pedro Bay Ecosystem Restoration Feasibility Study will be subject to five types of review: District Quality Control (DQC); Agency Technical Review (ATR); Independent External Peer Review (IEPR); public, state and agency review; and Washington-level Policy and Compliance Reviews.

# 3. STUDY INFORMATION

**a. Decision Document.** The decision document will be an Integrated Feasibility Report (IFR) and National Environmental Policy Act (NEPA) document. The NEPA document will be an Environmental Impact Statement (EIS) and Environmental Impact Report (EIR). The integrated document will be referred to as an IFR/EIS in this Review Plan. The purpose of the IFR/EIS is to document the project delivery team's (PDT) evaluation of the Federal interest and recommended plan to improve the East San Pedro Bay ecosystem. The IFR/EIS will require approval from the South Pacific Division, USACE Headquarters (HQUSACE), the Chief of Engineers, as well as congressional authorization of the project. The EIS will satisfy all requirements under NEPA.

**b. Study Description.** The study area is in Long Beach, California, within East San Pedro Bay between the Long Beach Shoreline and the offshore Long Beach Breakwaters, east of the Port of Long Beach. To the west and northwest of San Pedro Bay are the communities of San Pedro and Wilmington, respectively and to the east the community of Seal Beach. The study area includes the waters in the immediate vicinity (and shoreward) of the breakwaters, the beaches of Long Beach spanning from the mouth of the Los Angeles River southward to the San Gabriel River, and the upstream reaches of the Los Angeles River that

have direct impact on the Bay. The study area will be assessed from a watershed perspective to identify how this effort may be integrated in a collaborative manner into larger watershed efforts being conducted by others. For example, coordination with other studies and efforts to target pollution and debris clean up further upstream of Los Angeles River. The study may consider the benefits of addressing ecosystem restoration measures within the Los Angeles River watershed. The boundaries of the study area are preliminary and may be refined based on findings during the feasibility study.

The Los Angeles and Long Beach harbors consist of about 1,800 acres of water in the inner navigation channels, 5,700 acres of landfill, and 6,000 acres of water (sheltered anchorages and navigation channels) between the landfills and the 8.6 miles of federally constructed and maintained breakwaters. Two of the most prominent and contributing features within the Study Area include the Long Beach Breakwater and the mouth of the Los Angeles River (see Figure 1):

**Figure 1 Study Area Location**


1) Long Beach Breakwater

San Pedro Bay is protected by breakwaters, totaling 8.6 miles, with two openings to allow ships to enter the Ports of Los Angeles and Long Beach. These openings divide the breakwater into three sections: the San Pedro Breakwater, the Middle Breakwater, and the Long Beach Breakwater. The San Pedro and Middle Breakwaters protect the Ports of Los Angeles and Long Beach, respectively. The 2.5 mile Long Beach Breakwater is the easternmost breakwater. The Long Beach Breakwater was authorized by Congress in 1940 to extend the San Pedro Bay Breakwater to provide a protected anchorage for the U.S. Navy's Pacific Fleet. The federal government constructed the breakwater from 1941 - 1949. The USACE maintains the federal breakwaters. The purpose of this study is to evaluate ecosystem restoration measures within East San Pedro Bay. To design a restoration project, reconfigurations of the Long Beach Breakwater, as it affects the water quality and hydrodynamics of the area, may be analyzed as part of an array alternatives. Potential reconfiguration could provide an opportunity for rocky materials from the breakwater reconfiguration to be used for ecosystem restoration measures.

2) Los Angeles River

The Los Angeles River (LAR) is a major flood control waterway for the Los Angeles watershed basin. In the 1930s, USACE began channelizing the river for flood control and by 1954, the entire

length of the river was channelized. The river is operated and maintained by the USACE and the LA County Department of Public Works. The LAR discharges into San Pedro Bay. Alternatives for this ecosystem restoration study may look at changes needed within the LAR, as it negatively impacts the overall health of the bay.

In addition to the Breakwater and the River, the study area contains several locations with potential for ecosystem restoration and recreational opportunities. The entire study area will be analyzed for ecosystem restoration opportunities. The areas with highest potential include the nearshore habitats that have been severely degraded. Habitat types for potential restoration include coastal wetlands, rocky reef/hard bottom, kelp, eelgrass/seagrass, sandy bottom and intertidal zone. These habitats support a variety of marine life including, but not limited to, marine mammals, fish and benthic invertebrates. Elevated concentrations of metals and pesticides in sediments have been found at sites within the LAR estuary and the Harbor's water quality/circulation has been degraded. These ecosystems and species dependent on healthy environments would be at risk depending on the feasibility study outcome.

The cost-sharing non-Federal sponsor is the City of Long Beach.

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

- The study will likely have significant interagency interest requiring close coordination.
- All technical disciplines have methods to identify and mitigate inherit project risks.
- The feasibility study will look at the open bay area for ecosystem restoration opportunities in the area bounded by the Port of Long Beach to the west, the Los Angeles River mouth to the northwest, the Long Beach shoreline along the north and east, the Alamitos Bay Jetty's to the southeast, and the Long Beach Breakwater to the south.
- Public and stakeholder interest is expected to be diverse and complex.
- The project will be justified primarily by ecosystem restoration outputs.
- The final IFR/EIS and supporting documentation will contain standard engineering, economic, and environmental analyses and information.
- Information in the decision document is unlikely to be based on novel methods, involve the use of innovative materials or techniques, or contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices.

**d. 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 contributions to be provided include:

- Public involvement support
- Document production support
- Graphics/visual information support

## 3. DISTRICT QUALITY CONTROL

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) and in-kind products shall undergo District Quality Control (DQC). DQC is an internal review of basic science and engineering work focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district manages DQC.

**a. Documentation of DQC.** Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC .DQC comments will be documented electronically along with responses, and associated resolutions accomplished throughout the review process. DQC

records will be provided to the ATR team for each ATR event and the ATR team will provide comments as to the adequacy of the DQC effort for the associated product.

**b. Products to Undergo DQC.** The draft and final IFR/EIS (decision document) including feasibility-level design of the recommended plan and all technical appendices will undergo DQC prior to release from the District for external reviews (e.g., ATR and Type I IEPR). All DQC reviews will be complete and closed out before external reviews are initiated.

**c. Required DQC Expertise.** Required expertise for DQC includes Plan Formulation, Economics, Environmental and Cultural Resources, Coastal Engineering, Cost Engineering, Real Estate, Geotechnical Engineering and Office of Counsel.

## 4. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents and any in-kind products. 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 USACE guidance, and that the document clearly explains the analyses and results. The RMO for this study, the National Ecosystem Planning Center of Expertise (ECO-PCX), will manage the ATR and will select a qualified team from outside the home district that is not involved in the study. ATR teams will be assigned by the ECO-PCX and will be comprised of senior USACE personnel and may be supplemented by outside experts. The ATR team lead will be from outside the home MSC.

**a. Products to Undergo ATR.** The ATR team will review the draft and final IFR/EIS (decision document) including feasibility-level design of the recommended plan, technical appendixes, and any supporting documentation that is not contained in the technical appendices. This review will occur following completion of DQC. The ATR team will also be informally engaged throughout the feasibility phase and will complete interim reviews on specific products as necessary.

**b. Required ATR Team Expertise.** Below is a list of anticipated disciplines for the ATR team. This list will be revised if the expertise needed for the review changes as the study progresses. The expertise represented on the ATR team reflects the significant expertise involved in the work effort and generally mirrors the expertise on the PDT. The PDT made the initial assessment of expertise needed based on the PMP and the factors affecting the scope and level of review and may suggest additional technical disciplines as the study progresses. In addition to the expertise outlined below, ATR reviewers should be experienced in reviewing products resulting from risk-informed decision-making following SMART Planning processes. The RMO will determine the final make-up of the ATR team. The names, organizations, contact information, credentials, and years of experience of the ATR members will be included in Attachment 1 once the team is established.

| ATR Team Members/Disciplines | Expertise Required |
|---|---|
| ATR Lead / Planning | The ATR lead should be a senior professional with extensive experience preparing Civil Works decision documents and conducting ATR. The lead should have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead will be a senior water resources planner and certified reviewer with experience in formulation, evaluation, and selection of alternatives for ecosystem restoration. Reviewer must be approved by the Planning Community of Practice. |

| ATR Team Members/Disciplines | Expertise Required |
|---|---|
| Economics | The Economics reviewer should have experience with assumptions, methodologies, analysis and conclusions for ecosystem restoration studies. Reviewer must be approved by the Planning Community of Practice (PCOP). |
| Environmental Resources | The Environmental Resources reviewer should have extensive knowledge of marine biology in the study area, specifically knowledge of endangered coastal species and experience with coastal projects. Knowledge of Federal environmental laws and regulations including NEPA and ESA is required. Reviewer must be approved by the PCOP. |
| Cultural Resources | This reviewer should have a background in cultural resources management and specialized experience with built environment and historic structures. Experience with coastal projects is preferred. Knowledge of NHPA and NEPA is required. Reviewer must be PCOP approved. |
| Coastal Engineering | The Coastal Engineering reviewer should have experience designing ecosystem restoration projects, and have knowledge of General Investigation requirements for coastal engineering. Reviewer must be CERCAP approved. |
| Geotechnical Engineering | The Geotechnical Engineering reviewer should have experience with offshore ecosystem restoration planning projects, and have knowledge of sediment characterization, dredged sediment suitability determinations, and slope stability. Reviewer must be CERCAP approved. |
| Cost Engineering | The Cost Engineering reviewer will be identified by the Cost Mandatory Center of Expertise (MCX) and will have experience using Micro-Computer Aided Cost Estimating System (MCACES) and experience developing cost estimates for ecosystem restoration projects. |
| Real Estate | The Real Estate reviewer will have experience in development of SMART Planning Real Estate Plans and will have experience in verification of considerations of utility relocations, staging, and material disposal. |

**a. 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 include:

(1) The review concern – identify the product's information deficiency or incorrect application of policy, guidance, or procedures;

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

(3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and

(4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In those situations when comments are made that address incomplete or unclear information, the reviewer should seek clarification from the PDT. Then, assess whether actual concerns 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, the ECO-PCX, 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 EC 1165-2-214. Unresolved concerns can be closed in DrChecks with a note that the concern has been elevated for vertical team resolution.

At the conclusion of each ATR effort, the ATR team lead will prepare a summary Review Report. 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 copy of each reviewer's comments (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 draft report and final report. A sample Statement of Technical Review is included in Attachment 2.

## 5. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

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

- Type I IEPR. Type I IEPR is managed outside the USACE and conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.

- Type II IEPR. Type II IEPR is managed outside the USACE and conducted on design and construction activities for hurricane, coastal 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 work in assuring public health, safety, and welfare.

**a. Decision on IEPR.** Based on a risk-informed decision process, Type I IEPR will be required. While the project would not involve significant threat to human life, and it is estimated to cost less than the $200 million threshold for Type I IEPR, the NEPA document will be an EIS. Details of the decision to conduct a Type I IEPR are provided below:

- The project does not involve significant threat to human life.
- Project construction costs have not yet been estimated, but will likely be below the $200 million threshold in WRRDA 2014.
- The NEPA document will be an EIS.
- Potential project alternatives could present complex challenges or contain precedent-setting methods or models, and could result in conclusions that have the potential to change prevailing practices.
- The Governor of California has not requested an independent peer review and is not expected to make such a request.

At this point, it is too early for the Engineering Division Chief to make a recommendation on whether Type II IEPR is required because a recommended plan has not been identified. A decision on Type II IEPR will be made in the Pre-Construction Engineering & Design (PED) Review Plan.

**b. Products to Undergo Type I IEPR.** The draft IFR/EIS and supporting documents will undergo Type I IEPR. Public comments will also be reviewed by the Panel for information purposes. The intent is to ensure that the Panel is aware of the public's concerns and determine whether there are any technical issues that were raised by the public that they had not previously considered.

**c. Required Type I IEPR Panel Expertise.** The following provides a description of the proposed panel members and expertise. The four member panel includes the necessary expertise to assess engineering, environmental, and economic adequacy of the decision document, as required by EC 1165-2-214, Appendix D. Reviewers will be selected by an Outside Eligible Organization. The likely disciplines and expertise required for IEPR are presented below. Each discipline will review products related to their area of expertise and focus their review on the previously listed items. Additional technical areas requiring IEPR may be identified during the study/review process.

| IEPR Panel Members/Disciplines | Expertise Required |
|---|---|
| Plan Formulation | This panel member should be an expert in the USACE plan formulation process, procedures, and standards with experience evaluating alternative plans for ecosystem restoration studies. |
| Economics | This panel member should be a senior Economist with extensive knowledge of cost/benefit analysis for ecosystem restoration projects. Experience with the CE/ICA model is also required. |
| Environmental Resources | The panel member should be an expert in marine biology, ideally in coastal California, specifically with knowledge of endangered coastal and near-shore marine species and habitats. The panel member should be familiar with USACE environmental analyses, |

| | |
|---|---|
| | Ecosystem Restoration studies, CZMA, EFH and other regulatory requirements, and feasibility reports. |
| Coastal (Hydraulic) Engineering | This reviewer should have extensive experience with aquatic ecosystem restoration, wave and circulation modelling, and USACE coastal engineering requirements for feasibility studies. |

**d. Documentation of Type I IEPR.** The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-214. The IEPR documentation in DrChecks will include the text of each IEPR concern, the PDT response, a brief summary of the pertinent points in any discussion, and the agreed upon resolution. 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 will 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 copy of each reviewer's comments (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.

## 6. 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 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 policies, particularly policies on analytical methods and the presentation of findings in decision documents.

## 7. COST ENGINEERING REVIEW AND CERTIFICATION

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

## 8. 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.

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.

**a. Planning Models.** The following models may be used to develop the decision document:

| Model Name and Version | Brief Description of the Model and How It Will Be Applied in the Study | Certification / Approval Status |
|---|---|---|
| Habitat Evaluation Index TBD | Recognizing that there is currently no available "off the shelf" habitat evaluation methodology that would meet the specific needs of the Study, the PDT reached out to ERDC for assistance. ERDC conducted a 2-day Ecological Modelling Workshop in February 2016 for the PDT. The study was the basis for "applied lab work" during the workshop. With kelp forests, eelgrass and rocky substrate as the primary targeted habitat types for restoration, the PDT began the process of quantifying a basic habitat suitability index for key physical parameters such as transmissivity/clarity, salinity, depth, temperature, water circulation, etc. Line graphs were developed for many of these physical parameters, which could be used along with GIS-based mapping to further develop the habitat suitability index. The PDT may partner with ERDC to continue this work as the foundation for a customized habitat evaluation that would be vetted with ECO-PCX and run for the study. | The PDT will work with PCX to seek single-use approval. |
| RECONS | Economics model used to analyze Regional Economic Development (RED) benefits of the alternatives and Tentatively Selected Plan (TSP). | Certified |
| IWR Planning Suite Version 2.0.6.0 | IWR-Plan uses pre-formulated plans or management measures and evaluates variations in output levels and costs. | Certified |

**b. Engineering Models.** The following models may be used to develop the decision document:

| Model Name and Version | Brief Description of the Model and How It Will Be Applied in the Study | Approval Status |
|---|---|---|
| CMS-Wave | Model for wave transformation from deep water to near shore. Will provide wave conditions within bay and input into later hydrodynamic models. | Allowed for Use |
| GenCade | Long term shoreline change model. Will be used to investigate impacts of chosen measures. | Allowed for Use |
| EFDC | 3-D hydrodynamic and water quality model. Provides circulation modeling along with salinity/contaminant concentrations. | Not directly approved. Model developed by EPA. No benefits will be gained from output, USACE approval not needed. |
| MII | Used to estimate costs of project alternatives. | Enterprise |
| Crystal Ball | Accounts for risk and uncertainty of alternatives. | Enterprise |
| CEDEP | Corps-proprietary, Excel add-on for Cost Engineering; used to estimate costs of alternatives | Enterprise |
| ArcGIS | Used to visually represent alternatives. | Enterprise |
| Automated Risk Assessment Modeling System | Used to visually represent risks of alternatives. | Enterprise |

## 9. REVIEW SCHEDULES AND COSTS

**a. ATR Schedule and Cost.** ATR will be conducted seamlessly throughout the study. During Fiscal Year 2016, the ATR team will be engaged to review documents prior to the Alternatives Milestone. The ATR Team will review the Draft Report after the Tentatively Selected Plan milestone. The ATR Lead will prepare the ATR Review Report. The feasibility study schedule is shown below.

| Milestone | Date |
|---|---|
| Alternatives | September 2016 |
| Tentatively Selected Plan | August 2017 |
| Agency Decision | March 2018 |
| Final Report/ Civil Works Review Board | July 2018 |
| Chief's Report | January 2019 |

The ATR and Model Review schedule and cost estimates are presented below.[1]

| Task | Date | Cost |
|---|---|---|
| ECO-PCX review of preliminary economics technical documentation (Prior to Alternatives Milestone and/or TSP Milestone) | June 2016 | $5,000 |
| Model Approval Review | February 2017 | $50,000 |

[1] Cost for ATR Lead participation in milestone meetings is additional to what is shown and costs will be updated once information becomes available.

| | | |
|---|---|---|
| ATR of draft IFR/EIS (After Tentatively Selected Plan Milestone) | September - October 2017 | $54,500 |
| ATR of final IFR/EIS (At conclusion of Feasibility Level Design) | May 2018 | $40,500 |
| | | |
| Total: | | $150,000 |

**b. Type I IEPR Schedule and Cost.** The IEPR schedule and cost estimate is presented below.

| Task | Date | Cost |
|---|---|---|
| ECO-PCX initial Coordination of IEPR | April 2017 | $4,000 |
| Management of IEPR | July – November 2017 | $15,000 |
| Type I IEPR of draft IFR/EIS (Prior to Agency Decision Milestone) | September - October 2017 | $100,000* |
| | | |
| Total: | | $119,000 |

*Estimated contract for 4 reviewers

**c. Model Certification/Approval Schedule and Cost.** Single-use, or Regional, model approval will be sought for the Habitat Evaluation. The schedule is shown in the table above.

## 10. PUBLIC PARTICIPATION

The public will be invited to comment through informal and formal public scoping meetings and public review comment periods during the feasibility study. This includes a public review of the draft IFR/EIS (public review occurs concurrently with ATR, IEPR, and HQ policy reviews). Public input will be available to the IEPR team. Details will be contained in a Public Involvement/Communications Plan. This RP will be posted to the District web site for public review prior to initiation of ATR.

## 11. 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 an attachment. 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 to initially approve the plan. The latest version of the Review Plan, along with the Commander's approval memorandum, should be posted on the Home District's SharePoint site or similar means of electronic storage and retrieval. The latest Review Plan should also be provided to the RMO and home MSC.

## 12. REVIEW PLAN POINTS OF CONTACT

| Name | Office | Email | Phone |
|---|---|---|---|
| Susie Ming | CESPL | Susan.M.Ming@usace.army.mil | 213-452-3789 |
| Paul Bowers | CESPD | Paul.W.Bowers@usace.army.mil | 415-503-6556 |
| Greg Miller | ECO-PCX | Gregory.B.Miller@usace.army.mil | 504-862-2310 |
| Larry Cocchieri | Coastal Storm Risk Management PCX | Lawrence.J.Cocchieri@usace.army.mil | 347-370-4571 |

**ATTACHMENT 1: TEAM ROSTERS**

**Project Delivery Team Roster**

| Discipline | Name | Organization | Email |
|---|---|---|---|
| Project Manager | Monica Eichler | CESPL-PM-N | Monica.Eichler@usace.army.mil |
| Project Manager | Susie Ming | CESPL-PM-N | Susan.M.Ming@usace.army.mil |
| Project Manager (Non-Fed Sponsor) | Diana Tang | City Manager's Office, City of Long Beach | Diana.Tang@LongBeach.gov |
| Lead Planner | Eileen Takata | CESPL-PD-WW | Eileen.K.Takata@usace.army.mil |
| Alternate Lead Planner | Megan Whalen | CESPL-PD-WA | Megan.A.Whalen@usace.army.mil |
| Economist | Jeannine Hogg | CESPL-PD-E | Jeannine.H.Hogg@usace.army.mil |
| Environmental Coordinator | Naeem Siddiqui | CESPL-PD-RN | Naeem.A.Siddiqui@usace.army.mil |
| Cultural Resources Specialist | Danielle Storey | CESPL-PD-RN | Danielle.L.Storey@usace.army.mil |
| Coastal (Hydraulic) Engineer | Chuck Mesa | CESPL-ED-DC | Chuck.Mesa@usace.army.mil |
| Coastal (Hydraulic) Engineer | Matt Wesley | CESPL-ED-DC | Matthew.Wesley@usace.army.mil |
| Value Engineer | Arnecia Williams | CESPL-ED-DV | Arnecia.N.Williams@usace.army.mil |
| Real Estate | John Sunshine | CESPL-AM-CW-PA | John.W.Sunshine@usace.army.mil |
| Geologist | Jeffrey Devine | CESPL-ED-GG | Jeffrey.D.Devine@usace.army.mil |
| Geotechnical Engineering | Tu Nguyen | CESPN-ET-EG | Tu.T.Nguyen@usace.army.mil |
| Public Affairs | Greg Fuderer | CESPL-PA | Gregory.A.Fuderer@usace.army.mil |
| Office of Counsel | Elena Eggers | CESPL-OC | Elena.Eggers@usace.army.mil |
| Office of Counsel | Elizabeth | CESPL-OC | Elizabeth.A.Moriarty@usace.army.mil |

**ATR Team Roster**

| Discipline | Name | Organization | Email |
|---|---|---|---|
| ATR Lead / Planning | TBD | | |
| Economics | TBD | | |
| Environmental Resources | TBD | | |
| Cultural Resources | TBD | | |
| Coastal (Hydraulic) Engineering | TBD | | |
| Geotechnical | TBD | | |
| Cost Engineering | TBD | | |
| Real Estate | TBD | | |

**IEPR Panel Roster**

| Discipline | Name |
|---|---|
| Plan Formulation | TBD |
| Economics | TBD |
| Environmental Resources | TBD |
| Coastal (Hydraulic) Engineering | TBD |

## ATTACHMENT 2: STATEMENT OF TECHNICAL REVIEW FOR DECSION DOCUMENTS

### COMPLETION OF AGENCY TECHNICAL REVIEW

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

*SIGNATURE* _____ _____

*Name* Date
ATR Team Leader
*Office Symbol/Company*

*SIGNATURE* _____ _____

*Name* Date
Project Manager
*Office Symbol*

*SIGNATURE* _____ _____

*Name* Date
Architect Engineer Project Manager[1]
*Company, location*

*SIGNATURE* _____ _____

*Name* Date
Review Management Office Representative
*Office Symbol*

[1] Only needed if some portion of the ATR is contracted.

**CERTIFICATION OF AGENCY TECHNICAL REVIEW**

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

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

*SIGNATURE* _____ _____

*Name* Date
Chief, Engineering Division
*Office Symbol*

*SIGNATURE* _____ _____

*Name* Date
Chief, Planning Division
*Office Symbol*

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

| Revision Date | Description of Change | Page / Paragraph Number |
|---|---|---|
| | | |
| | | |
| | | |
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| | | |

**ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS**

| Term | Definition |
|---|---|
| ASA(CW) | Assistant Secretary of the Army for Civil Works |
| ATR | Agency Technical Review |
| DQC | District Quality Control/Quality Assurance |
| Home District/MSC | The District or MSC responsible for the preparation of the decision document |
| DX | Directory of Expertise |
| ECO-PCX | National Ecosystem Planning Center of Expertise |
| EIR | Environmental Impact Report |
| EIS | Environmental Impact Statement |
| HQUSACE | Headquarters, U.S. Army Corps of Engineers |
| IEPR | Independent External Peer Review |
| IFR | Integrated Feasibility Report |
| LAR | Los Angeles River |
| MCX | Mandatory Center of Expertise |
| MSC | Major Subordinate Command |
| NER | National Ecosystem Restoration |
| NEPA | National Environmental Policy Act |
| CEQA | California Environmental Quality Act |
| CZMA | Coastal Zone Management Act |
| OMRR&R | Operation, Maintenance, Repair, Rehabilitation and Replacement |
| PCX | Planning Center of Expertise |
| PDT | Project Delivery Team |
| PMP | Project Management Plan |
| RED | Regional Economic Development |
| RMC | Risk Management Center |
| RMO | Review Management Organization |
| SAR | Safety Assurance Review |
| SPL | Los Angeles District |
| USACE | U.S. Army Corps of Engineers |
| WRDA | Water Resources Development Act |
| WRRDA | Water Resources Reform and Development Act |