

REVIEW PLAN

Elliott Bay Seawall, Seattle, Washington Feasibility Report

Seattle District

MSC Approval Date: [28 February 2011](#)

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US Army Corps
of Engineers ®

REVIEW PLAN

Elliott Bay Seawall, Seattle, Washington
Feasibility Report

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1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the Elliott Bay Seawall, Seattle, Washington feasibility report.

b. References

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

c. **Requirements.** This review plan was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the PCX for Hurricane and Storm Damage Reduction.

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. The RMO will also coordinate with the PCX for Ecosystem Restoration to ensure that the appropriate expertise is included in reviews of products developed for the secondary purpose of ecosystem restoration.

3. STUDY INFORMATION

a. **Decision Document.** Elliott Bay Seawall, Seattle, Washington Feasibility Report.

The purpose of the Feasibility Study is to determine the Federal interest in providing shoreline protection from coastal erosion and increasing environmental protection along Seattle's central waterfront. Consistent with Section 4096(a) of WRDA 2007, the Feasibility Study also evaluates potential risk reduction from seismic events. The Feasibility Study will investigate and identify potential solutions to identified water resources problems and recommend either for or against

Federal participation in the implementation of a storm damage reduction/risk management project and ecosystem restoration projects.

The Sponsor's objective is a long-term solution to storm damage that will protect public infrastructure and economic activity in the project area and may include novel and precedence-setting approaches; and the implementation of environmental restoration features in the nearshore area in the vicinity of the existing seawall. In addition, the non-Federal sponsor has an interest in adding recreation features in conjunction with the proposed project as betterments. The recommended plan that will be set forth in the Feasibility Report must be both a technically viable and an implementable solution to the storm damage and ecosystem problems.

The final decision documents will consist of the Feasibility Report and Environmental Impact Statement. The Feasibility Report will provide complete documentation of the study analyses, results, and recommendations for Federal implementations. The Feasibility Report will also document compliance with all applicable guidance, statutes, Executive Orders and Administration policy. The Feasibility Report and Environmental Impact Statement will thus be the basis for recommendation by the Assistant Secretary of the Army, Civil Works (ASA-CW) for Congressional authorization.

- b. Study/Project Description.** Following the Nisqually earthquake of February 2001, SDOT, Washington State Department of Transportation (WSDOT) and Federal Highway Administration (FHWA) inspected both the seawall and the Alaskan Way Viaduct for earthquake damage. The inspection revealed that the earthquake had damaged the viaduct but not the seawall. It revealed, however, that continuous wave erosion has caused severe deterioration of the seawall and subsurface erosion of the area behind the seawall. Both structures are now considered to be at or near the ends of their design lives.

In 2001, the City and their partner agencies formed a team that began planning the replacement of the viaduct and the seawall. The SR 99 Alaskan Way Viaduct and Seawall Replacement Project (AWVSRP) partners are comprised of FHWA, WSDOT, and SDOT. The AWVSRP included the evaluation of the rebuilding or replacement of the Elliott Bay Seawall due to the essential transportation functions of SR 99. The AWVSRP team has put significant effort into developing alternatives and examining their costs, benefits, and impacts. As the viaduct replacement progressed, however, the seawall was removed as an essential element to the project because of the selection of a tunnel to replace the existing structure. The alignment of the new tunnel is such that the tunnel does not utilize the seawall as part of the tunnel making 2 separate and distinct projects.

The Corps has since partnered with SDOT, the non-Federal sponsor, to conduct a study focusing on coastal storm damage reduction. The main objective of the project will be to provide protection to the downtown waterfront from storm wave action that causes erosion of soils following failure of the seawall. The Corps began the planning process by evaluating the work already performed.

The Corps' Reconnaissance Report, approved by HQUSACE on 17 October, 2003, demonstrated that there is a Federal interest in pursuing a feasibility study to examine the potential for a project that will protect the public facilities and economic activities along the Elliott Bay shoreline from coastal storm damages. Information contained in the Reconnaissance Report, as well as that in the City's previous engineering analyses and the AWVSRP Team's draft EIS have been used as a base from

which to continue the required detailed project development and implementation studies. The Feasibility Report generated from this study will thus reflect current problems and opportunities, the desires of the sponsor and views of the public, and establish final planning criteria and objectives used to formulate plans. The study report will also identify additional measures necessary to meet the final planning objectives and document the formulation and evaluation of alternative plans and basis for plan selection.

The study area includes those portions of downtown Seattle, WA and vicinity that could be impacted by coastal storm damages and shoreline erosion along Elliott Bay, including potential failure of the existing Elliott Bay Seawall and subsequent shoreline erosion and potential environmental effects on the Elliott Bay near-shore ecosystem. Physical damages in the primary study area are expected to result in damages to the regional transportation network (highways, local streets, railroad lines, and ferry system), downtown businesses, public utilities and poses a threat to public safety.

Measures considered for coastal storm damages included non-structural (relocation of structures, utilities, and transportation lines), rock revetment, post-failure shoreline stabilization followed by seawall rebuild, and various new seawall designs. Preliminary analysis of the potential measures concluded that non-structural solutions do not adequately provide for public safety and the need to retain transportation and utility systems in the waterfront area. Furthermore, a post-failure stabilization followed by seawall rebuild is more expensive than other measures that provide the same level of protection, and does not address public safety issues. Finally, the construction of a rock revetment post-failure also does not meet public safety issues, and has significant environmental impacts to the near-shore area. Therefore, the remaining plan formulation process will focus on various types of seawall reconstruction.

Measures under consideration for ecosystem restoration include a bench to provide shallow water habitat in front of the system, anchoring systems for kelp, and “bumpy” features in the wall to encourage growth of intertidal species.

c. Factors Affecting the Scope and Level of Review. The scope and appropriate level of review will be determined based on the following factors:

- The Elliott Bay Seawall study & project warrants a Type I IEPR as the project has significant interagency interest, is very controversial, has significant economic, environmental, and social effects, and requires an EIS. The IEPR will include elements of a SAR for the coastal storm elements.
- The seawall is located in a highly urbanized and developed area.
 - The threat to Human life/safety is considered to be high. The project area contains high volumes of traffic (vehicle, pedestrian, and commercial) and is an active part of the community year-round. Any potential project must account for human life/safety threats.
 - Maintaining access to local businesses, residential developments, and public infrastructure during construction is imperative.
- Potential Environmental Impacts

- The project may impact fish and wildlife. Footprints exceeding the current seawall footprint could present a reasonable threat to fish and wildlife living near the shore of Elliott Bay.
 - Areas of potential contaminated fill behind the existing seawall present numerous environmental challenges to address during design and construction.
- The project will be completed under the new Civil Works Transformation (SMART Planning) and review requirements and level of detail are to be determined as the study progresses.
 - A number of properties in the project area are part of existing National Register historic districts, or meet the criteria for designation as City of Seattle historic landmarks.
 - The study area is within the aboriginal territory of the Duwamish, a Puget Salish or Lushootseed speaking group that lived in winter villages on the shores of Elliott Bay, Lake Washington, Lake Union, and Salmon Bay. Potential project lands within the study area have a high probability for hunter-gatherer, ethnographic, and historic period archeological resources.
 - The project is likely to be controversial; there will likely be public dispute as to the size, nature, economic costs, environmental costs, and other factors associated with the project.
 - The project is considered to have significant interagency interest. The project will impact City, County, State, and Federal agencies, as well as local tribes and community interest groups.
 - Estimated total project costs range from \$350 Million to \$600 Million; however, these estimates are incomplete and require additional analysis as the design phase begins.
 - The design of the project will likely be highly controversial as many locally preferred options will be presented by different agencies and groups in the Seattle area.
 - The project study does not contain influential scientific information. Proven construction and design techniques are being explored and will not require additional research and analysis. The goal of the study is to find a technically viable and implementable solution for storm damages.
- d. In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR as determined appropriate. The in-kind products and analyses to be provided by the non-Federal sponsor include:
- Public involvement
 - Geotechnical analysis and data
 - Engineering and design efforts through the City and its contractors
 - Environmental and cultural studies
 - Project management for the City's efforts
 - Preliminary designs and costs for 10% design
 - Design for the recommended plan(s)
 - Developing and revising the draft feasibility report
 - Attendance at meetings and coordination with the Corps PDT

The above list will be updated as specific in-kind activities, costs, and products are identified. Section 4096 of the Water Resource Development Act (WRDA) of 2007 provides additional language for the study regarding in-kind contributions; implementation guidance has not been provided at this time:

b. Acceptance of Contributions. – In carrying out the study, the Secretary may accept contributions in excess of the non-Federal share of the cost of the study from the non-Federal interest to the extent that the Secretary determines that the contributions will facilitate completion of the study.

c. Credit. – The Secretary shall credit toward the non-Federal share of the cost of any project authorized by law as a result of the study the value of contributions accepted by the Secretary under subsection (b).

4. DISTRICT QUALITY CONTROL (DQC)

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

a. **Documentation of DQC.** DrChecks™ review software will be used to document all DQC comments, responses, and associated resolutions accomplished throughout the review process. Relevant DQC records will be reviewed during 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.** All work products and reports, evaluations, and assessments shall undergo necessary and appropriate DQC, including National Environmental Policy Act (NEPA) documents, other environmental compliance products, and any in-kind services provided by the local sponsor. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices, and the recommendations before approval by the District Commander.

c. **Required DQC Expertise.** The Project Manager will work with Resource Managers prior to reviews to determine the appropriate level of expertise required for each product to undergo review.

5. AGENCY TECHNICAL REVIEW (ATR)

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

- a. **Products to Undergo ATR.** An ATR was completed for the Feasibility Scoping Meeting (FSM) Read-Ahead Report. Additional products to undergo ATR include, but are not limited to: Draft Feasibility Report / Environmental Impact Statement, 35% Designs, and planning models used in the study.
- b. **Documentation of ATR.** DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:
- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
 - (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
 - (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
 - (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

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

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

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

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated

to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-209, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- **Type I IEPR.** Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-209.
 - **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.
- a. Decision on IEPR.** Type I IEPR will be performed on the Feasibility Report/Environment Impact Statement. Type I IEPR will be completed in accordance with the requirements outlined in EC 1165-2-209 Civil Works Review Policy.

Type I IEPR is required because of the following project conditions:

- Report is a decision document with an estimated total project cost in excess of \$45 million dollars
- An Environmental Impact Statement will be generated as part of this study
- The project/study likely involves significant threat to human life/safety
- The project/study will likely be highly controversial

A Safety Assurance Review is required because aspects of the recommended project pose risk to public safety if the project does not function successfully.

- b. Products to Undergo Type I IEPR.** Type I IEPR will review the draft Feasibility Report/Environmental Impact Statement. Additional Type I IEPR reviews of key interim products will be determined as the study progresses and will be performed in accordance with EC 1165-2-209 Civil Works Review Policy paragraph 11.
- c. Required Type I IEPR Panel Expertise.** IEPR reviewers will be selected by an Outside Eligible Organization. Candidates will be nominated by the Corps. The likely disciplines and expertise required for IEPR are presented below in Table 3. Additional technical areas requiring IEPR may be identified during the study/review process. The table will be updated when team members are established.

IEPR Panel Members/Disciplines	Expertise Required
Economics	The Economics Panel Member should be an expert in the field of economics with specific experience working in
Environmental / NEPA	The Environmental Panel Member should be an expert in northwest marine ecosystems structures and functions to ensure appropriate designs and considerations are provided for ecosystem restoration components and structural seawall components to determine the effect the project may have on the environment.
Coastal Engineering	The Coastal Engineering Panel Member should be an expert in coastal engineering with specific experience designing and/or construction seawalls in storm-affected areas.
Geotechnical Engineering	The Geotechnical Engineering Panel Member should be an expert in his field with specific experience working in the northwest on related projects and experience working with fill materials.
Civil Engineering	The Civil Engineering Panel Member should be an expert in the field and have specific experience with major construction projects that include utility and roadway relocation and construction, as well as, public safety projects.
Structural Engineering	The Structural Engineering Panel Member should be an expert in the field with specific experience related to seawall design and construction in marine environments subjected to heavy storms and erosion.
Additional Panel Members may be added as determined appropriate	

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

- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions; and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

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

7. POLICY AND LEGAL COMPLIANCE REVIEW

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

8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

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

9. MODEL CERTIFICATION AND APPROVAL

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

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part

of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

- a. Planning Models.** The following planning models are anticipated to be used in the development of the decision document: List the planning models (including version number as appropriate) to be used, briefly describe each model and how it will be applied ON THIS STUDY, and indicate the certification/approval status of each model. Planning models could include, but are not limited to: economic damage models (e.g., HEC-FDA, Beach FX, IMPLAN), environmental models for habitat evaluation or mitigation planning (e.g., IWRPlan, HEP HSI models, HGM), transportation or navigation models, and homegrown or spreadsheet models (e.g., excel spreadsheets, @Risk, etc; see EC 1105-2-412 for more information about what constitutes a planning model). Below are some examples of the type of information that might be included in this section (Note: Lesser known models, including local/regional models, will need a more complete description than widely used, nationally recognized models).

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
Economics: Elliott Bay Seawall Damage Assessment Model (EBSDAM)	The EBSDAM was developed to calculate and assess economic damages and benefits for the project based on a systems approach to seawall failure from any combination of storm damage events and/or seismic activity.	ATR completed with FSM Read-ahead material; not approved.
Environmental: Elliott Bay Nearshore Ecosystem Conceptual Model and Evaluation Matrix.	The Nearshore Model was developed to evaluate the potential impacts to the Elliott Bay marine environment based on alternatives developed for the study, as well as evaluate potential ecosystem restoration functions and mitigation requirements to determine their usefulness, functionality and benefits/impacts.	ATR completed with FSM Read-ahead material; not approved.

- b. Engineering Models.** The following engineering models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
Cost Engineering: Micro-Computer Aided Cost Estimating System (MII)	Cost engineering software used to develop project cost estimates based on risk-informed decision making.	Approved
Structural Engineering: Limit Analysis Using Passive Wedge	Structural analysis model used to evaluate the structural stability of the designs.	

Wave Transformation Analysis: STWAVE Model	Wave analysis model used in the development and analysis of the new and existing structures.	
USACE Beach-FX Coastal Storm Damage Evaluation	USACE-developed model for evaluating coastal storm damages.	Approved
Displacement-Based Modeling: FLAC Model	Model used to evaluate existing and new seawall designs.	
Seismic: HAZUS (Developed by FEMA)	Seismic analysis used to evaluate seismic effects on the existing and new structure as well as design analysis and requirements.	
SWAN Wave Transformation Model	Model used by City of Seattle design team for wave analyses and design of the structural alternatives.	

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost.

Product	Date	Estimated Cost
FSM Read-Ahead Material	July 2010	\$47,000 (actual)
Draft Feasibility Report / EIS (including 35% designs)	March 2013	\$60,000
	Total	\$107,000

b. Type I IEPR Schedule and Cost.

Product	Date	Estimated Cost
Draft Feasibility Report / EIS (including 35% designs)	April 2013	\$450,000
PCX Coordination during IEPR		\$35,000
	Total	\$485,000

c. Model Certification/Approval Schedule and Cost.

Product	Date	Estimated Cost
Elliott Bay Seawall Damage Assessment Model	April 2013	\$35,000
Nearshore Ecosystem Conceptual Model and Evaluation Matrix	April 2013	\$35,000
	Total	\$70,000

11. PUBLIC PARTICIPATION

The public will be invited to comment directly to the PDT through formal public scoping meetings and public review comment periods programmed into the feasibility schedule. This includes but will not be limited to documents developed for the FSM, AFB, NEPA documentation, and Draft and Final FR/EIS. The opportunity for the public to nominate reviewers will be provided. Public input will be available to the ATR and IEPR teams to ensure public comments have been considered in development of the draft and final FR/EIS. This Review Plan will be posted to the District website for the public.

12. REVIEW PLAN APPROVAL AND UPDATES

The Northwestern 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.

ATTACHMENT 1: TEAM ROSTERS

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the <type of product> for <project name and location>. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer’s needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

Name
ATR Team Leader
Office Symbol/Company

Date

SIGNATURE

Name
Project Manager
Office Symbol

Date

SIGNATURE

Name
Architect Engineer Project Manager¹
Company, location

Date

SIGNATURE

Name
Review Management Office Representative
Office Symbol

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

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

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

SIGNATURE

Name
Chief, Engineering Division
Office Symbol

Date

SIGNATURE

Name
Chief, Planning Division
Office Symbol

Date

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number
February 2011	Updated team and study information	
October 2012	Updated to current approved format	

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
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