DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NORTHWESTERN DIVISION
PO BOX 2870
PORTLAND OR 97208-2870

REPLY TO
ATTENTION OF

CENWD-PDD

17 DEC 2014

MEMORANDUM FOR Commander, Seattle District (CENWS-PM-PL/Valerie Ringold)

SUBJECT: Review Plan (RP) Approval for the Seattle Harbor, Washington, Navigation Improvement Project Integrated Feasibility Report / Environmental Impact Statement

1. References:

a. EC 1165-2-209, Civil Works Review Policy, 31 January 2012.

b. Memorandum, CESAM-PD-D, 8 October 2014, subject as above (Encl 1).

2. The RP for the Seattle Harbor, Washington, Navigation Improvement Project Integrated Feasibility Report / Environmental Impact Statement (Encl 2) was prepared in accordance with the reference guidance.

3. The RP has been revised to address NWD review comments. All comments have been back-checked and closed out. Per the memorandum under reference 1.b, the Deep Draft Navigation Planning Center of Expertise has reviewed and approved the RP.

4. I hereby approve this RP, which is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this RP or its execution will require review by CENWD-PDD and approval by this office.

5. The RP should be posted to the internet and available for public comment.

6. Please contact Mr. Matthew Rea at 503-808-3984, if you have further questions regarding this matter.

2 Encls

JOHN S. KEM
BG, USA
Commanding

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
SOUTH ATLANTIC DIVISION
60 FORSYTH STREET SW, ROOM 10M15
ATLANTA, GA 30303-8801

REPLY TO
ATTENTION OF

CESAM-PD-D (1105-2-40a) 8 October 2014

MEMORANDUM FOR MS. VALERIE RINGOLD (CENWS-PM-PL) U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT, POST OFFICE BOX 3755, SEATTLE, WASHINGTON 98124-3755

SUBJECT: Review Plan Approval, Seattle Harbor, Washington, Navigation Improvement Project, Feasibility Report and Environmental Impact Statement

1. The Deep Draft Navigation Planning Center of Expertise (DDNPCX) has reviewed the enclosed Review Plan (RP) for the subject study and concurs that the RP satisfies peer review policy requirements outlined in Engineering Circular (EC) 1165-2-214 Water Resources Policies and Authorities Civil Works Review, dated 15 December 2012.

2. The review was performed by Ms. Kimberly P. Otto, Review Manager, DDNPCX. The RP checklist that documents the review is enclosed.

3. The DDNPCX recommends the RP for approval by the MSC Commander. Upon approval of the RP, please provide a copy of the approved RP, a copy of the MSC Commander Approval memorandum, and the link to where the RP is posted on the District website.

4. Thank you for the opportunity to assist in the preparation of the RP. Please coordinate any Agency Technical Review and Independent External Peer Review efforts outlined in the RP with the undersigned at (251) 694-3842.

Encls

KIMBERLY P. OTTO
Review Manager, DDNPCX

CF:
CESAD-PDS/PAYNES
CESAD-PDS/SMALL
CESAD-PDS/STRATTON

REVIEW PLAN

Seattle Harbor, Washington, Navigation Improvement Project
Integrated Feasibility Report / Environmental Impact Statement

Seattle District

PCX Endorsement Date: 8 October 2014
MSC Approval Date: 17 December 2014
Last Revision Date: 6 October 2014

US Army Corps
of Engineers ®

REVIEW PLAN

Seattle Harbor, Washington
Integrated Feasibility Report / EIS

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Seattle Harbor, Washington Integrated Feasibility Report and Environmental Impact Statement (FR/EIS).

b. References

(1) Engineering Circular (EC) 1165-2-214, Civil Works Review Policy, 15 December 2012
(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) Cost and Schedule Risk Analysis Guidance, 17 May 2009
(6) Project Management Plan for the Seattle Harbor, Washington Navigation Improvement Project, 2014

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

The RMO will coordinate with the Cost Engineering Mandatory Center of Expertise (MCX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. The feasibility study for the Seattle Harbor project is a single-purpose study; no life safety issues are anticipated.

3. STUDY INFORMATION

a. Decision Document. The authorized name of the study is Seattle Harbor, Washington. The location is King County, Washington. The decision document will be an integrated Feasibility Report and National Environmental Policy Act (NEPA) documentation. The NEPA document will be either an Environmental Assessment (EA) or Environmental Impact Statement (EIS). For simplicity's sake, the integrated document will be referred to as a FR/EIS in this Review Plan. The purpose of the FR/EIS is to document the project delivery team's (PDT) evaluation of the Federal interest in deepening the East and West Waterways of Seattle Harbor to increase National Economic Development (NED) by

facilitating more cost effective deep draft commercial navigation while taking into account the environmental impacts of such a project. The integrated FR/EIS will require approval from the Northwestern Division Major Subordinate Command (MSC), USACE Headquarters (HQUSACE), the Chief of Engineers, as well as congressional authorization. The EIS will satisfy all requirements under the National Environmental Policy Act (NEPA).

b. **Study/Project Description.** The Federally authorized East, West, and Duwamish Waterways navigation channel is located in Puget Sound's Elliott Bay at Seattle, Washington (Figure 1). The feasibility study will analyze two waterways of the authorized project: the East Waterway (currently authorized from -34 to -51 feet MLLW) and the West Waterway (currently authorized at -34 feet MLLW).

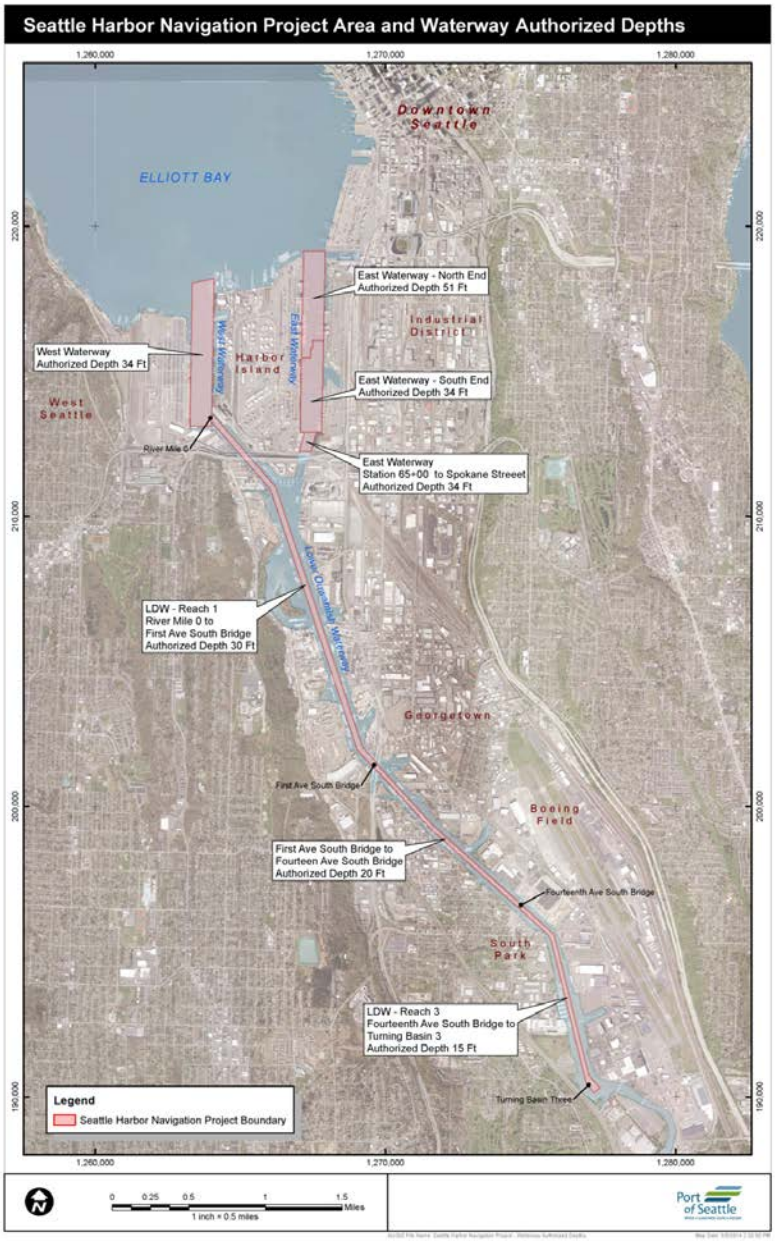

Figure 1. Federally Authorized Navigation Channel (East, West, and Duwamish Waterways)

The study intends to investigate potential deepening of the East and West Waterways, determining the economic and environmental feasibility of deepening the channels up to -55 feet mean lower low water (MLLW). Additional analysis will be conducted in the feasibility phase and will involve evaluation of all reasonable alternatives to address problems and opportunities. The estimated construction cost for a recommended plan is approximately $95 million.

The cost-sharing non-Federal sponsor is the Port of Seattle.

c. Factors Affecting the Scope and Level of Review.

- There are not challenging aspects of this study. It consists of deepening a segment of the existing Federal navigation project to improve efficiency of vessel operations. Accordingly, the project does not have any significant technical, institutional, or social challenges.
- The feasibility study is not highly controversial as it consists of deepening a segment of the existing navigation project. It is not anticipated that there will be a significant public dispute as to the size, nature, or effects of the project. Disposal of dredged material will include placement in existing approved disposal sites.
- There are no known risks to the proposed channel modification. All technical areas have methods to identify and mitigate inherit risks.
- The project consists of deepening a segment of the existing Federal navigation project. Preliminary analysis indicates that impacts to fish and wildlife, incluing threatenend and endangered species, are expected to be less than significant. To the extent practicable, environmental concerns can be addressed through mitigation measures of avoidance, minimization, or compensation, and through public education and outreach efforts. Either an EA or EIS will be completed to document the environmental effects of the proposed plan.
- The study will likely have significant interagency interest. The study will require close coordination with the Environmental Protection Agency, as existing Superfund sites at various stages of clean-up are adjacent to the proposed project area.
- Past sediment sampling in both waterways has confirmed the presence of contaminated sediments, triggering additional requirements for sampling and handling of dredged material.
- Public and stakeholder interest is expected to be diverse and complex.
- The project will not be justified by life safety and does not involve significant threat to human life/safety assurance.
- The Governor of Washington has not requrested a peer review by independent experts.
- The final Feasibility Report/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, inolve the use of innovative materials or techniques, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices. The project does not contain influential scientific information and will not include any highly influential scientific assessments.
- The project is a typical channel deepening project involving traditional methods of dredging and traditional methods of placement of dredged material. This project would be for an activity (dredging and placement) for which there is ample experience within USACE.
- The project design is not anticipated to require redundancy, resiliencey, and/or robustness, unique construction sequencing, or a reduced or overlapping design and construction schedule.

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 products and analyses to be provided by the non-Federal sponsor include:

- Project management
- Participation in scoping activities, including public meetings
- GIS support
- Graphics / visual information support
- Sediment sampling/characterization
- Economics data gathering

4. DISTRICT QUALITY CONTROL

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) and in-kind products 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. 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 FR/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 individuals from Plan Formulation, Econoimcs, Environmental and Cultural Resources, Operations, Coastal (Hydraulic) Engineering, Cost Engineering, Dredged Materials Management Office, Environmental Technology (Hazardous, Toxic, and Radioactive Waste Specialist), Real Estate, and Office of Counsel. It should be noted that the DQC reviewers for Operations, Coastal (Hydraulic Engineering), Dredged Materials Management Office, and Environmental Technology will be responsible for review of the Sediment Sampling Plan and sampling results in lieu of a traditional Geotechnical Engineering reviewer.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.) 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 published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner. ATR is managed within USACE by the designated RMO, wich is the Deep Draft Navigation Planning Center of Expertise (DDNPCX) for this study, 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 assigned by the DDNPCX, comprised of

senior USACE personnel, and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

a. Products to Undergo ATR. The ATR team will review the draft and final FR/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 throughtout the feasibility phase and will complete intermim 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 outlined in Section 3 of the review plan, 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 decion-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 ATR team is established.

ATR Team Members/Disciplines	Expertise Required
ATR Lead / Planning	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead should also be a senior water resources planner with experience in formulation, evaluation, and selection of alternatives for deep draft navigation.
Economics	The Economics reviewer(s) is required to be an economist certified by the deep draft navigation business line. Depending upon availability, two economics reviewers may be required, one for reviewing the assumptions, methodologies, analysis and conclusions and the other for reviewing HarborSym modeling.
Environmental Resources	The Environmental Resources reviewer should have extensive knowledge of Pacific Northwest biology, specifically knowledge of endangered coastal species (salmonids) and experience on coastal projects. Knowledge of Federal regulations and NEPA is also required.
Coastal (Hydraulic) Engineering	The Coastal Engineering reviewer should have experience designing navigation improvement projects including channel deepening projects, and have knowledge of General Investigation requirements for coastal engineering. Reviewer must be CERCAP approved.
Dredged Material/Sediment Management Specialist	The dredged material reviewer should have experience in dredged material management, sediment characterization, suitability determinations, disposal plans, and HTRW

	considerations in deep draft navigation planning projects. This reviewer, in concert with the Coastal (Hydraulic) Engineer, will be responsible for review of the sediment sampling results in lieu of a traditional Geotechnical Engineering reviewer.
Cost Engineering	The Cost Engineering reviewer will be identified by the Cost MCX and will have experience using Micro-Computer Aided Cost Estimating System (MCASES) and experience developing cost estimates for deep draft navigation improvements, dredging, and coastal dredged material disposal.
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 dredged material disposal. This review will be limited in scope because RE acquisition is not anticipated for the project.

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

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

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to 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 lead 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 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 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

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

- Type II IEPR. Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

a. Decision on IEPR. Based on a risk-informed decision process, Type I IEPR will be required. While the project would not involve significant threat to human life, it is estimated to cost more than the $45

million threshold for Type I IEPR and the NEPA document may be an EIS. Details of the Type I IEPR risk informed decision summary is provided below:

- The project does not involve significant threat to human life.
- Project construction costs were estimated during reconnaissance phase to be approximately $95 million, which is above the $45 million threshold in EC 1165-2-214.
- The NEPA document may be an EIS.
- Information is based on methods commonly used for dredging, does not present complex challenges for interpretation or contain precedent-setting methods or models, and is unlikely to present conclusions likely to change prevailing practices.
- Project would be for an activity (dredging and placement) for which there is ample experience within the USACE.
- The Governor of Washington has not requested an independent peer review.
- Type II IEPR is not anticipated as the project does not involve hurricane and storm risk management and flood risk components.

b. Products to Undergo Type I IEPR. The draft integrated Feasibility Report / EIS and supporting documentation 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 proposed 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	The Plan Formulation panel member should also be an expert in the USACE plan formulation process, procedures, and standards with experience in the evaluation of alternative plans for deep draft navigation studies.
Economics	The Economics panel member should be a senior Economist with extensive knowledge of cost/benefit analysis for navigation improvement projects. Experience with the HarborSym model is also required.
Environmental Resources	The panel member should be an expert in Northwest biology, specifically knowledge of endangered coastal species including salmonids. The panel member should be familiar with USACE environmental analyses, Ecosystem Restoration studies, and feasibility reports.
Coastal (Hydraulic) Engineering	The Coastal Engineering reviewer should have extensive experience designing navigation improvement projects including channel deepening projects, and have be familiar with USACE

	coastal engineering requrirements 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, Appendix D. 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 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 MANDATORY CENTER OF EXPERTISE REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Cost MCX, located in the Walla Walla District. The MCX 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 MCX will also provide the Cost Engineering MCX certification. The RMO is responsible for coordination with the Cost Engineering MCX.

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:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HarborSym	Economics- The HarborSym Suite - widening model, deepening model, container model, data analysis post-processor model and a tide tool model – will be used as part of the Benefit Analysis.	Certified
RECONS	Economics – Model used to analyze Regional Economic Development (RED) benefits of the alternatives and Tentatively Selected Plan (TSP)	Certified

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
MPFATE/MDFATE	Used to simulate open water placement of dredged material considered suitable for open water placement at the Elliott Bay PSDDA site.	Allowed for Use
DELFT-3d (TBD)	Hydrodynamic and sediment transport model used to simulate currents, sediment transport, and salinity excursions in the estuary. *Note: Coordination is ongoing to determine if this model will be run during the feasibility phase. This Review Plan will be updated once use of this model is confirmed.*	Allowed for Use
MII	Used to estimate costs of alternatives and the TSP	Enterprise
Crystal Ball	Used to account for risk and uncertainty of alternatives and the TSP	Enterprise

@Risk	Used to account for risk and uncertainty of alternatives and the TSP	Enterprise
CEDEP	Corps-proprietary, Excel add-on for Cost Engineering; used to estimate costs of alternatives and the TSP	Enterprise
ProUCL Version 4.00.04	Statistical software used to estimate costs of alternatives and the TSP	Enterprise
MiniTab	Statistical software used to estimate costs of alternatives and the TSP	Enterprise
ArcGIS	Used to visually represent alternatives and the TSP	Enterprise
Automated Risk Assessment Modeling System	Used to visually represent risks of alternatives and the TSP	Enterprise

c. Design Methodology. The following engineering methodologies are anticipated to be used in the development of the decision document:

Ship Simulation (TBD)	Simulation of ports, harbors, inland waterways, and other maritime environments. *Note: Coordination is ongoing to determine if this model will be run during the feasibility phase. This Review Plan will be updated once use of this model is confirmed.*	Shall be approved by ERDC with appropriate District oversight in compliance with ER 1110-2-1403

10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. The ATR schedule and cost estimate is presented below.

Task	Date	Estimated Cost
Limited ATR of preliminary economics technical documentation (Prior to Alternatives Milestone and/or TSP Milestone)	December 2014-January 2015; November 2015	$10,000
ATR of draft FR/EIS (Prior to Agency Decision Milestone)	April-May 2016	$40,500
ATR of final FR/EIS (After ADM and at conclusion of Feasibility Level Design)	March-April 2017	$40,500
Total:		$91,000

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

Task	Date	Estimated Cost

Task	Date	Estimated Cost
DDNPCX initial Coordination of IEPR	January 2016	$5,000
RMO Management of IEPR	January 2016-July 2016	$25,000
Type I IEPR of draft FR/EIS (Prior to Agency Decision Milestone)	May-July 2016	$150,000*
Total:		$180,000

*Estimated contract for 4 reviewers

c. Model Certification/Approval Schedule and Cost. Not applicable. There are no models requiring certification for this study.

11. PUBLIC PARTICIPATION

The public will be invited to comment directly to the PDT through informal and formal public scoping meetings and public review comment periods programmed into the feasibility schedule. This includes a public review of the draft FR/EIS (public review occurs concurrently with ATR, IEPR, and HQ policy reviews). Public input will be available to the IEPR team to ensure public comments have been considered in development of the draft and final FR/EIS.

This RP and the accompanying PMP will be posted to the District web site for public review once it is approved by the MSC.

12. REVIEW PLAN APPROVAL AND UPDATES

The Northwestern Division (NWD) 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

Project Delivery Team Roster

Discipline	Name	Organization	Email
Project Manager			
Planner			
Economist			
DDNPCX Economist			
Environmental			
Cultural Resources			
Coastal Engineer			
HTRW			
Cost Engineering			
Real Estate			
DMMO			
Navigation			
Public Affairs			
Office of Counsel			
Project Manager			

ATR Team Roster

Discipline	Name	Organization	Email
ATR Lead / Planning	TBD		
Economics	TBD		
Economics (HarborSym)	TBD		
Environmental Resources	TBD		
Coastal (Hydraulic) Engineering	TBD		
Dredged Material/Sediment Management Specialist	TBD		
Cost Engineering	TBD		
Real Estate	TBD		

IEPR Panel Roster

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

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

SIGNATURE _____ Date _____
Name
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ Date _____
Name
Project Manager
Office Symbol

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

SIGNATURE _____ Date _____
Name
Review Management Office Representative
Office Symbol

CERTIFICATION OF AGENCY TECHNICAL REVIEW

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

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

SIGNATURE _____ Date _____
Name
Chief, Engineering Division
Office Symbol

SIGNATURE _____ Date _____
Name
Chief, Planning Division
Office Symbol

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

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
ASA(CW)	Assistant Secretary of the Army for Civil Works	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
ATR	Agency Technical Review	PCX	Planning Center of Expertise
DQC	District Quality Control/Quality Assurance	PDT	Project Delivery Team
Home District/MSC	The District or MSC responsible for the preparation of the decision document	RED	Regional Economic Development
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMC	Risk Management Center
IEPR	Independent External Peer Review	RMO	Review Management Organization
MCX	Mandatory Center of Expertise	SAR	Safety Assurance Review
MSC	Major Subordinate Command	USACE	U.S. Army Corps of Engineers
NED	National Economic Development	WRDA	Water Resources Development Act
NEPA	National Environmental Policy Act		