DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NORTH ATLANTIC DIVISION
FORT HAMILTON MILITARY COMMUNITY
302 GENERAL LEE AVENUE
BROOKLYN NY 11252-6700

CENAD-PD-PP

DEC 2 2 2016

MEMORANDUM FOR Commander, New England District, 696 Virginia Road Concord, MA 01742-2751

SUBJECT: Review Plan Approval for New Haven Harbor, CT Navigation Improvement Feasibility Study

1. Reference CENAE-PD memorandum dated 30 November 2016, subject as above.

2. The Deep Draft Navigation Planning Center of Expertise of the South Atlantic Division is the lead office to execute the referenced Review Plan. The Review Plan includes Independent External Peer Review.

3. The enclosed Review Plan is approved for execution and is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution require new written approval from the NAD Commander.

4. The point of contact is Mr. Larry Cocchieri, NAD Planning Program Manager, 347-370-4571, Lawrence.J.Cocchieri@usace.army.mil.

Encl

WILLIAM H. GRAHAM
Brigadier General, USA
Commanding

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751

CENAE-PD

30 November 2016

MEMORANDUM FOR Commander, North Atlantic Division (CENAD-PD-X/ Mr. Cochieri), U.S. Army Corps of Engineers, Fort Hamilton Community, 301 General Lee Avenue, Brooklyn, New York 11252-6700

SUBJECT: Submission of the Review Plan for the New Haven Harbor, CT, Navigation Improvement Feasibility Study (P2 No. 395848) for Approval.

1. References: EC 1165-2-214, Civil Works Review, 15 December 2012.

2. Background: The New England District developed the Review Plan for the subject study and coordinated the Review Plan with the Deep Draft Navigation-PCX. See attached memorandum from the PCX dated November 15, 2016 recommending Review Plan approval.

3. Request: The New England District requests NAD approve the subject Review Plan.

4. Point of Contact: Questions should be directed to Barbara Blumeris, Study/Project Manager. She can be reached at 978-318-8737.

Encl
Memo from Review Mgr,
DDNPCX, dtd 15 Nov 2016

CHRISTOPHER J. BARRON
COL, EN
Commanding

REVIEW PLAN

NEW HAVEN HARBOR, CT
NAVIGATION IMPROVEMENT PROJECT
INTEGRATED FEASIBILITY REPORT &
Environmental Impact Statement

NEW ENGLAND DISTRICT

PCX Endorsement Date: November 15, 2016
MSC Approval Date: Pending
Last Revision Date: None

US Army Corps
of Engineers ®

REVIEW PLAN

New Haven Harbor, Connecticut
Integrated Feasibility Report & Environmental Impact Statement

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1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This plan defines the scope and level of peer review for the New Haven Harbor, Connecticut, Integrated Feasibility Report and Environmental Impact Statement.

b. **References**

(1) Engineer Circular (EC) 1165-2-214, Civil Works Review Policy, 15 Dec 2012
(2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
(3) Engineer 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) Planning SMART Guide (http://planning.usace.army.mil/toolbox/smart.cfm)
(6) U.S. Army Corps of Engineers, New England District, Quality Control Plan For Civil Works Decision Documents
(7) Project Management Plan for New Haven Harbor, CT, Navigation Improvement Study, 2016

c. **Requirements.** This plan was developed under EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products. It provides 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 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 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.

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 New Haven Harbor improvement 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 New Haven Harbor, Connecticut. The study area location is in New Haven, Connecticut. The decision document will be an integrated Feasibility Report and National Environmental Policy Act (NEPA) document. The NEPA document will be an 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 and recommended plan to improve transportation efficiency and safety at New Haven Harbor. The integrated FR/EIS will require approval from the North Atlantic Division Major Subordinate Command (MSC), USACE Headquarters (HQUSACE), the Chief of Engineers, as well as congressional authorization. The EIS will satisfy all requirements under NEPA.

b. Study/Project Description. New Haven Harbor is Connecticut's largest seaport and is located on the northern shore of Long Island Sound on the central Connecticut Coast. Figure 1 below shows the location of the Harbor approximately 65 miles east of New York City.

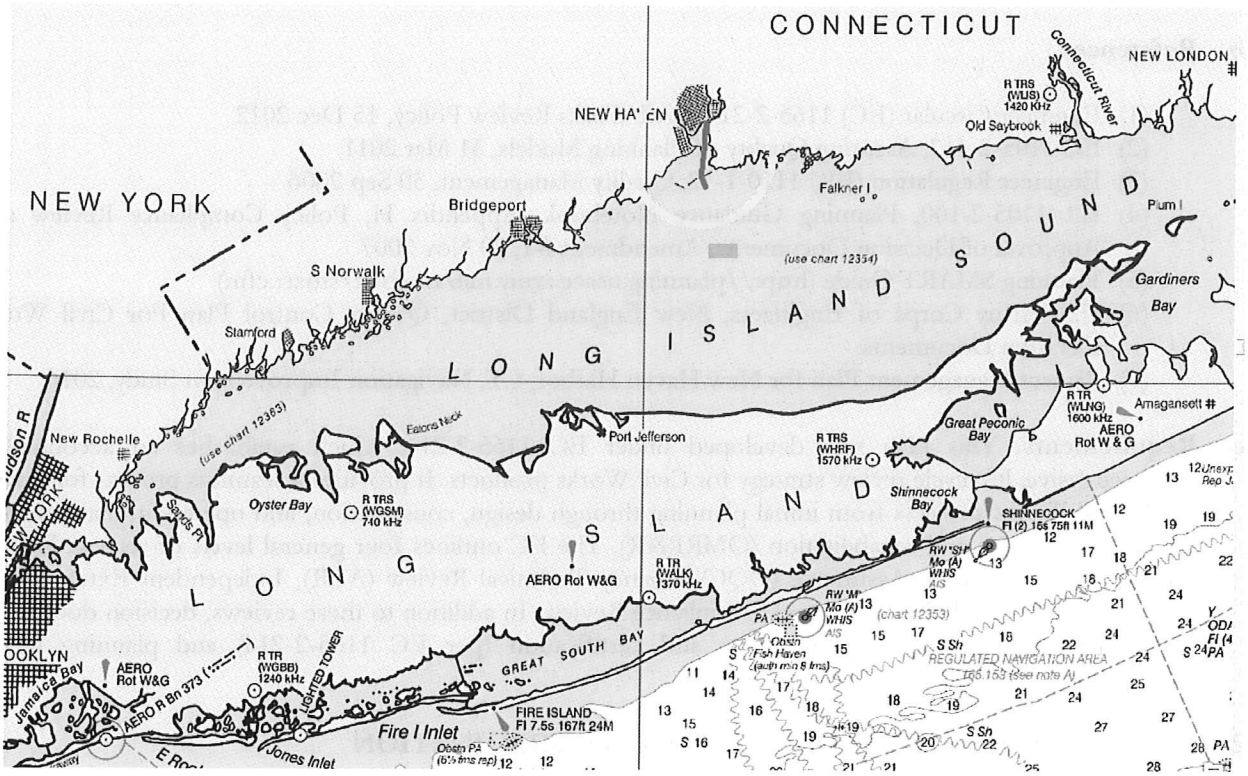

Figure 1. New Haven Harbor, CT, Location Map

The Federal navigation project shown in Figure 2 consists of:

- The main New Haven Harbor channel, authorized at -35 feet MLLW, about 5 miles in length, varying in width from 500 feet (outer-harbor) to 400 feet (inner-harbor), and widened to 800 feet along the terminals to provide a turning area;
- Anchorages in the upper harbor west of the main channel, authorized at -15 and -16 feet MLLW;
- The Quinnipiac River channel, authorized at -18 and -16 feet, MLLW, 200 feet wide;
- The Mill River channel, authorized at -12 feet MLLW, 200 feet wide, including two branches, east branch, 100 feet wide, west branch, 125 feet wide;
- The West River channel authorized at -12-feet MLLW, 100 to 150 feet wide, with a -6 feet MLLW anchorage;
- A pile and stone T-dike, 4,200 feet in length; and
- Three offshore stone breakwaters, 12,100 feet in length providing a refuge in the outer harbor.

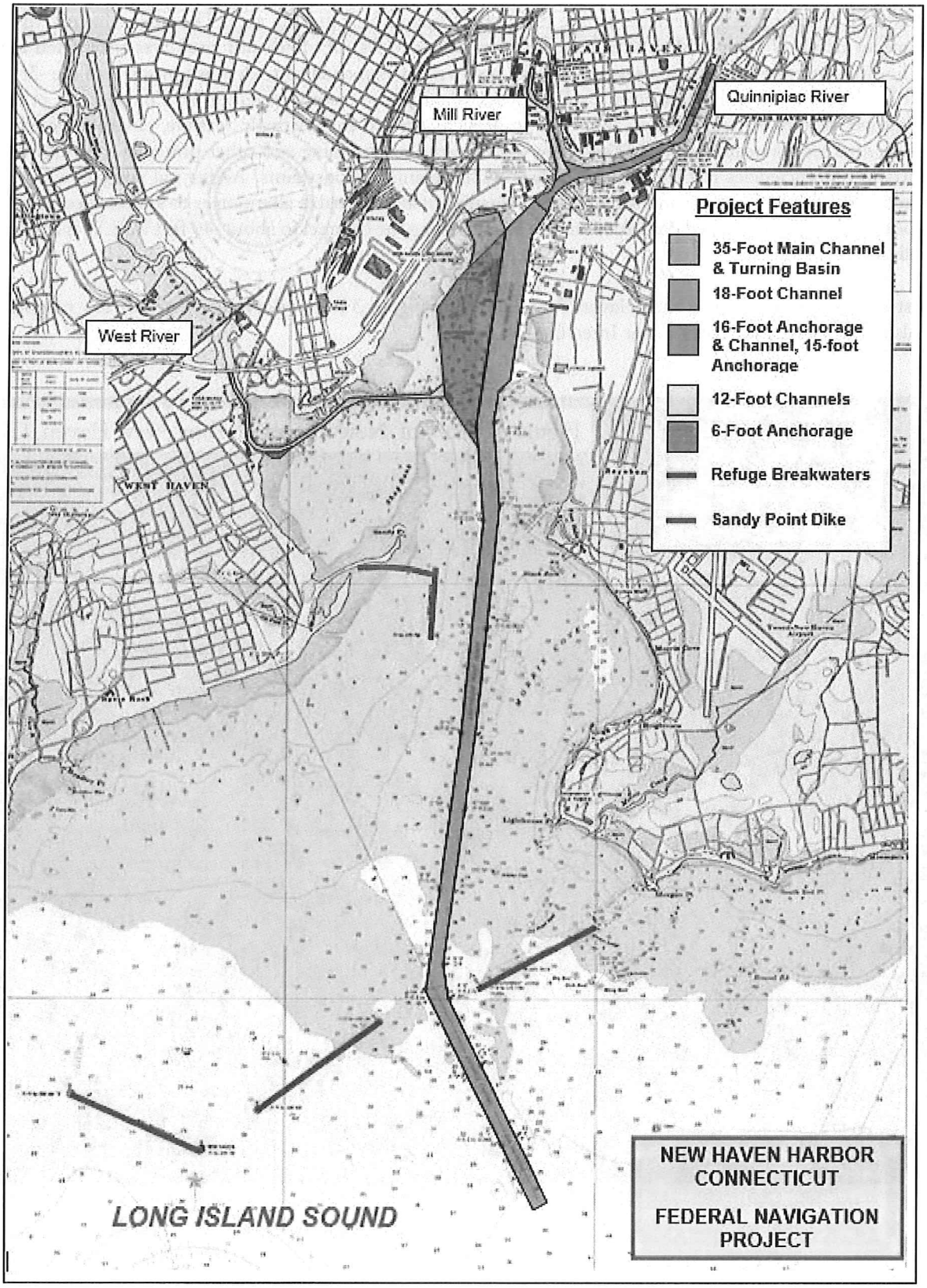

Figure 2. New Haven Harbor, CT

The study will focus on improvements to the main ship channel and turning area. The main channel was authorized to depth of-35 feet MLLW in River & Harbor Act of 24 July 1946 and work was completed in 1950. The study intends to examine deepening of the port's main ship channel to depths greater than the -35-foot MLLW (depth currently authorized by Congress). Making any recommendation to Congress on port deepening will require a determination that such improvements are engineeringly feasible, environmentally acceptable, and economically justified. The study will investigate deepening and other potential solutions to transportation inefficiencies at New Haven Harbor within planning constraints. 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 of deepening the channel to about -40 feet MLLW is about $50 million.

The cost-sharing sponsor is the New Haven Port Authority. Figure 3 below provides an aerial view of port terminals at the head of the harbor near Interstate-I95.

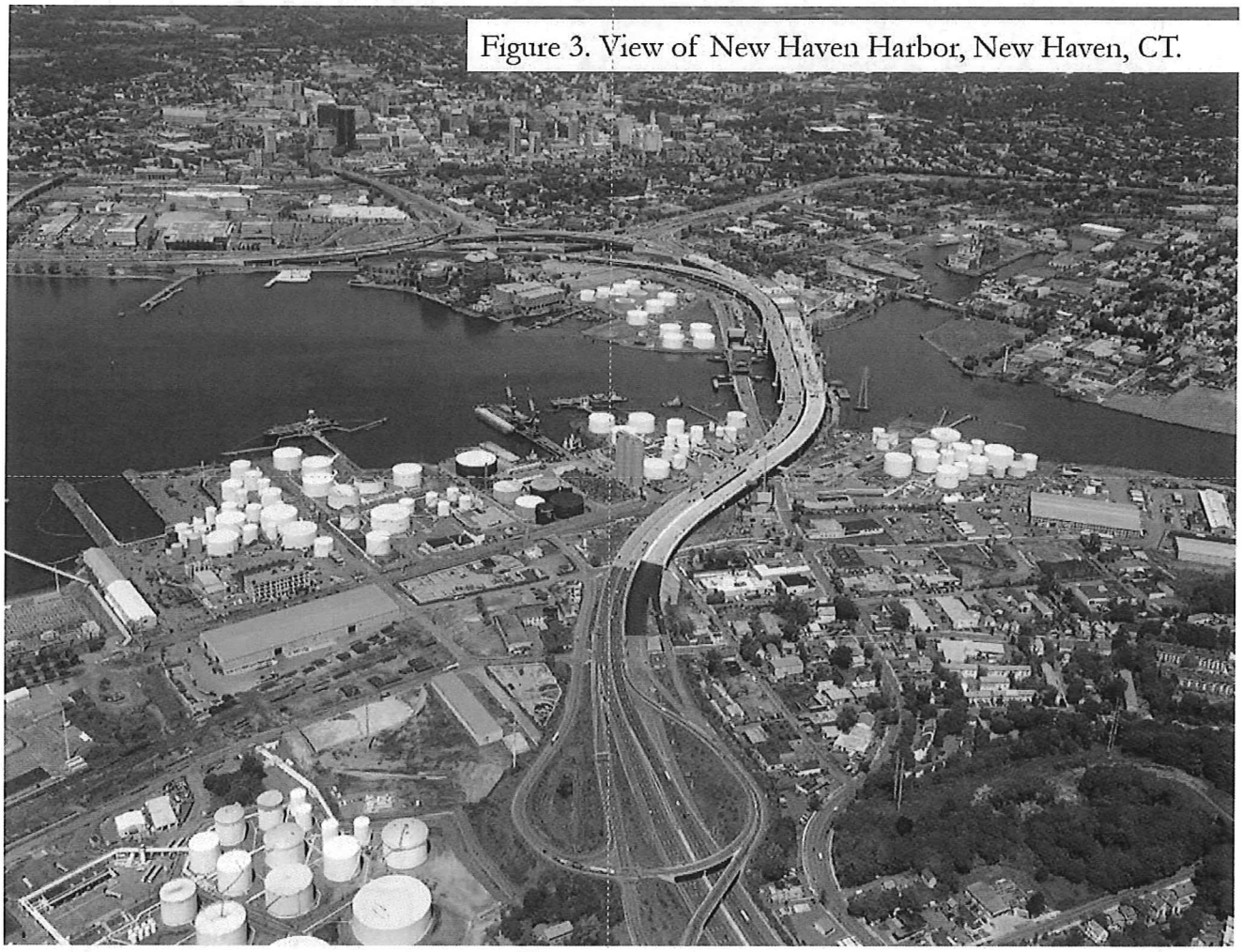

Figure 3. View of New Haven Harbor, New Haven, CT.

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

- This study will investigate channel deepening, widening, and alignment adjustments to improve efficiency and navigation safety of vessel operations on the main channel. The project has modest technical challenges because a portion of the deepening just inside of the breakwaters at the entrance to the inner harbor will include excavation in ledge. Institutional challenges could be significant due to the state and federal permitting requirements for projects in Long Island Sound.

- The feasibility study is expected to be controversial due to potential concerns related to disposal of dredged material in Long Island Sound and potential opposition by shell-fishing interest in the New Haven Harbor. Public and stakeholder interest is expected to be diverse.

- All technical disciplines have methods to identify and mitigate inherent project risks. Project risks identified at the start of the study are:
    - Limited existing information on the extent of the sub-surface ledge at the entrance to the inner harbor. This limited data could affect the study project cost estimate; however, this risk if low as during the study additional information will be collected on the ledge area.
    - Risk that port volumes may not be sufficient to result in annual economic transportation cost savings (benefits) that are greater that the annualized project costs. This risk is moderate and will be mitigated by identifying alternatives that are cost efficient.

- We are proceeding with an EIS and NEPA scoping process due to the anticipated controversy related to dredged material disposal in Long Island Sound. To the extent practicable, environmental concerns can be addressed through mitigation measures of avoidance, minimization, or compensation, and through public education and outreach efforts. At this stage in the study, it is anticipated that an EIS will be completed to document the environmental effects of the proposed plan.

- Preliminary analysis indicates that impacts to fish and wildlife, including threatened and endangered species, are expected to be less than significant. To the extent practicable, any environmental concerns identified can be addressed through mitigation measures of avoidance, minimization, or compensation. It is anticipated that proposed construction would be sequenced and dredging windows utilized to avoid and minimize potential impacts to biological resources.

- Preliminary analysis indicates that there are no scarce or unique cultural historic or tribal resources in the project area. During the FR/EIS study additional research, coordination with resource agencies, and consultation with Tribal interests will be performed.

- The potential navigation improvements including a deeper channel would provide beneficial economic effects to the Nation by reducing transportations costs as the larger ships would not be required to wait for the tide outside the harbor or require offshore lightering by barges to enter the harbor.

- The study will likely have significant interagency interest that will require close coordination. Lead Federal agencies under NEPA, will be invited to be a cooperating agency in the development of the EIS.

- Potential dredging depths for this study exceed current sediment sampling depths; thus, additional sampling and analysis will be required. In 2014 during maintenance, dredging of the Federal channel the sediment was tested and found to be suitable for open water disposal. Dredged material was successfully placed at the Central Long Island Sound open water disposal site. A channel-deepening project would be primarily in parent material (pre-industrial time-period) in the current Federal channel and the majority of the dredged material is anticipated to be suitable for beneficial use and/or open water disposal.

- The project will be justified primarily by transportation efficiency.

- The project will not be justified by life safety and does not involve significant threat to human life/safety assurance.

- The Governor of Connecticut has not requested a peer review of independent experts.

- The final FR/EIS and supporting documentation will contain standard engineering, economic and environmental analysis and information.

- Information in the decision document is unlikely to be based on novel methods, involve 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, resiliency, 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 sponsor as in-kind services are subject to DQC, ATR, and IEPR. The non-Federal sponsor is not expected to provide in-kind services for the study.

4. DISTRICT QUALITY CONTROL

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. The ATR team will be provided with a copy of the DrChecks DQC comments and responses recorded in DrChecks.

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, economics, environmental and cultural resources, civil/coastal engineering with navigation design experience, geotechnical engineering, cost engineering, real estate, navigation operations and maintenance, and Office of Counsel.

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

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 throughout the feasibility phase and will complete interim reviews on specific products as necessary.

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 ATR team is established.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process.
Plan Formulation	The plan formulation reviewer should be a senior water resources planner and should be ATR certified with experience in formulation, evaluation, and selection of alternatives for deep draft navigation studies.
Economics	The Economics reviewer(s) is required to be an economist who is ATR certified for 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 must be ATR certified and should have extensive knowledge of evaluation of potential environmental impacts related to dredging and dredge material placement, knowledge of threatened and endangered coastal species and experience with navigation projects. Knowledge of NEPA and other federal environmental laws and regulations is also required.

Cultural Resources	The Cultural Resources reviewer should have a general background in cultural resources evaluation and management. Experience with Corps navigation and coastal projects is preferred. Knowledge of National Historic Preservations Act and NEPA is also required.
Civil/Coastal (hydraulic) Engineering	The Civil/Coastal Engineering reviewer should have experience designing navigation improvement projects specifically channel deepening projects, and have knowledge of applicable engineering regulations and engineering manuals and other appropriate guidance for navigation projects. The reviewer must be certified by the Engineering and Construction Community of Practice as documented in the Corps of Engineers Reviewer Certification and Access Program (CERCAP).
Geotechnical Engineer	The geotechnical engineering reviewer should have experience in sediment characterization, channel slope stability, and characterization of the sub-surface conditions with identification of areas that may require rock removal. The reviewer must be certified by the Engineering and Construction Community of Practice as documented in CERCAP.
Real Estate	The Real Estate reviewer will have experience in development of SMART Planning Real Estate Plans and will have experience in preparing real estate plans for other navigation improvement projects including the application of navigational servitude for Federal navigations projects. The reviewer must be ATR certified for performing deep draft navigation reviews.
Operations	The operation reviewer will have experience with managing deep draft navigation projects that may periodically require maintenance dredging and disposal of dredged maintenance material.
Cost Engineering	The Cost Engineering reviewer will be identified by the Cost MCX and will have experience using the Corps of Engineers Dredge Estimating program (CEDEP) and Micro-Computer Aided Cost Estimating System (MCASES), experience developing cost estimates for deep draft navigation improvement projects, and experience with Cost and Schedule Risk Analysis of navigation improvement projects.

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 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 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 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 1165-2-214, 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 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 the final report. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW

Independent External Peer Review (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 described below.

- 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 for the study; however, it is anticipated that Type II IEPR will not be required. Details of the decision to conduct a Type I IEPR are provided below.

(1) The project does not involve a significant threat to human life as the project consists of standard dredging and disposal activities.

(2) Project construction costs are estimated to be $50 million, which is below the $200 million threshold.

(3) The Governor of Connecticut has not requested an independent external peer review and is not expected to make such a request.

(4) An EIS is being prepared due to anticipated controversy related to dredged material disposal in Long Island Sound (i.e., state and Federal permitting requirements and opposition by shell-fishing interests). Accordingly, significant public, stakeholder, and interagency interest is anticipated.

(5) The head of a Federal or state agency charged with reviewing the project has not requested an independent external peer review.

At this point in the planning process, it is too early for the Engineering Division Chief to make a recommendation ion on whether Type II IEPR is required because a recommended plan has not been identified. Currently, however, it is anticipated that Type II IEPR would not be required based upon the following assessment. Note, the decision on Type II IEPR will be revisited in the Implementation Phase, Preconstruction, Engineering, and Design (PED) Review Plan.

(1) The Federal action will not justified by life safety and failure of the project would not pose a significant threat to human life as the project will be for an activity (dredging and beneficial use and/or open water placement of dredged material) for which there is ample experience within the USACE;

(2) The project will not involve the use of innovative materials or techniques as engineering will not be based upon novel methods, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices. Information will be based on methods commonly used for dredging;

(3) The project does not require redundancy, resiliency, and/or robustness; and

(4) The project will not have unique construction sequencing or a reduced or overlapping design construction schedule.

b. **Products to Undergo Type I IEPR.** The draft FR/EIS and supporting documentation will undergo Type I IEPR. Public comments will also be provided to 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 (4) member panel includes the necessary expertise to assess economic, environmental, and engineering 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. At least one panel member should be familiar with the USACE SMART Planning Process.

IEPR Panel Members/Disciplines	Expertise Required
Plan Formulation	The Plan Formulation panel member should be an expert in the USACE plan formulation process, procedures, and standards withs p e c i f i c experience in the development and evaluation of alternative plans for deep draft navigation improvement studies.
Economics	The Economics panel member should be a senior Economist with extensive knowledge of cost/benefit analysis for USACE deep draft navigation improvement projects and experience in performing deep draft economic evaluations.
Environmental Resources	The panel member should be an expert in benthic marine biology, and have past experience with the Federal environmental compliance processes and analyses and other regulatory requirements.
Coastal (Hydraulic) Engineering	The Coastal Engineering reviewer should have extensive experience designing navigation improvement projects including channel deepening projects, and be familiar with USACE coastal l engineering requirements for civil works projects and feasibility studies.
Geotechnical Engineering	The geotechnical engineering reviewer should have experience in sediment characterization, channel slope stability, and characterization of the sub-surface conditions.

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:

a. Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
b. Include the charge to the reviewers;
c. Describe the nature of their review and their findings and conclusions; and
d. 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 REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the the Civil Works Cost Engineering and Agency Technical Review Mandatory Center of Expertise (MCX) located in the Walla Walla District. The MCX will assist in determining the expertise needed on the ATR team and in the development of the review charge. 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 are 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 Model Description and How It Will Be Used in the Study	Certification / Approval Status
HarborSym	Economics- The HarborSym Suite - widening model, deepening model, data analysis post-processor model and a tide tool model – will be used as part of the Benefit Analysis.	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 Model Description and How It Will Be Used in the Study	Approval Status
MII	Used to estimate costs of alternatives and the selected plan	Enterprise
CEDEP	USACE-proprietary, EXCEL add-on for dredging project cost estimates	Enterprise
Crystal Ball	Used to account for risk and uncertainty of the project and to develop the project cost contingency	Enterprise
ArcGIS	Used to visually represent alternatives and the selected plan	Enterprise
Ship-Simulation Model		

c. **Design Methodology.** A computer model ship simulation study may be performed during feasibility design following the Agency Decision Milestone. PDT will coordinate with ERDC as alternatives are developed to determine appropriate use and timing of a ship simulation study. It is possible that due to the likely uncomplicated channel and turning area design that the ship simulation study may occur during PED.

Ship Simulation (TBD)	Computer Model Simulation of New Haven Harbor channel and turning area proposed plan	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.** ATR will be conducted seamlessly throughout the study and the ATR lead will be engaged throughout the feasibility study. The ATR team will conduct reviews of the draft and final FR/EIS.

Milestone	Date
Alternatives Milestone	March 2017
Tentatively Selected Plan Milestone	February 2018
Release Draft FR/EIS for Public Review	April 2018
Agency Decision Milestone (ADM)	July 2018
Final FR/EIS	March 2019
Civil Works Review Board	May 2019
Chief's Report	July 2019

The ATR schedule and cost estimates are presented below.

Task	Date	Estimated Cost
ATR of draft FR/EIS concurrent with Public Review	April 2018	$53,000
ATR of draft final FR/EIS (prior to final FR/EIS)	March 2019	$53,000
Total:		$106,000

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

Task	Date	Estimated Cost
DDNPCX initial Coordination of IEPR	January 2018	$5,000
Management of IEPR (20% of contract)	February-July 2018	$16,000
Type I IEPR of draft FR/EIS concurrent with Public Review	April-May 2018	$90,000*
Total:		$111,000

*rough estimate for 5 reviewers (cost will depend on negotiated contract price).

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 New England District Commander and the New England District Project Manager through a formal public scoping meeting and formal public review comment periods. This includes a public review of the draft FR/EIS (public review occurs concurrently with ATR, IEPR, and HQ policy reviews). Public comments will be available to the IEPR team. This Review Plan and the Final IEPR Report will be posted to the Division web site at: http://www.nad.usace.army.mil/Business-With-Us/Civil-Works-Review-Plans/. The public, including scientific or professional societies will not be asked to nominate potential external peer reviewers.

12. REVIEW PLAN APPROVAL AND UPDATES

The North Atlantic Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (district, MSC, RMO, and HQUSACE) as to the appropriate scope and level of review for the decision document. The Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the 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 scope and/or level of review changes) 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 Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan will also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

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

- New England District: Planning Technical Lead
  Voice: 978-318-8737

- North Atlantic Division: MSC
  Voice : 347-370-4571

- Deep Draft Navigation Planning Center of Expertise: Review Manager
  Voice: 251-694-3842

ATTACHMENT 1: TEAM ROSTERS

Project Delivery Team Roster

Discipline	Name
Project Manager/Lead Planner	Barbara Blumeris
Environmental Compliance/Biologist	Todd Randall
Economist	Caitlin Schwall
Cultural Resources	Marcos Paiva
Coastal Engineering	John Winkelman
Civil Engineer	Megan Cullen
Geotechnical Engineer	Prasanna Rachakatia
Geology	Stephen Potts
Cost Engineer	Jeff Gaeta
Real Estate	Jeff Teller

ATR Team Roster

Discipline	Name
ATR Lead	TBD
Plan Formulation	
Economics including HarborSym	TBD
Environmental Resources	TBD
Cultural Resources	TBD
Civil/Coastal (Hydraulic) Engineering	TBD
Geotechnical Engineer	TBD
Operations	TBD
Cost Engineering	TBD
Real Estate	TBD

IEPR Team Roster

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

ATTACHMENT 2: STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the *<project name and location>, <type of product>* . The ATR was performed in compliance with the requirements of EC 1165-2-214.
A panel of *<X>* reviewers was established by the Deep Draft Navigation Planning Center of Expertise (DDNPCX), the Review Management Organization (RMO) that managed this review. The review commenced on *<date>* and was completed on *<date>*. 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.
<XXXX> comments resulted from ATR of study documents; this total included *<XX>* comments posted by the Cost Engineering Mandatory Center of Expertise reviewer. All ATR concerns have been resolved, and all comments have been closed in DrChecks.

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

SIGNATURE _____ _____
Name Date
Project Manager
Office Symbol

SIGNATURE _____ _____
Name Date
Review Management Office Representative
Office Symbol

CERTIFICATION OF AGENCY TECHNICAL REVIEW

We certify that the ATR *project name and location>, <type of product>* has been performed as required by EC 1165-2-214. All concerns resulting from 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