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

CESAD-PDP (1105) 27 November 2023

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers, Mobile District, 109 St. Joseph Street, Mobile, AL 36602

SUBJECT: Approval of Review Plan for the Gulfport Harbor, Mississippi, Feasibility Study

1. References:

a. Mobile District, CESAM-PD memorandum (Subject as above), 23 October 2023.

b. HQUSACE, CECW-P memorandum (Revised Delegation of Authority in Section 2034(a)(5)(A) of the Water Resources Development Act of 2007 (WRDA 2007), as amended (33 U.S.C. 2343)), 7 June 2018.

2. Mobile District prepared the review plan for the Gulfport Harbor, Mississippi, Feasibility Study consistent with ER 1165-2-217. Mobile District coordinated the review plan and request for exclusion from Independent External Peer Review (IEPR) with the Deep Draft Navigation Planning Center of Expertise (DDNPCX), which is the lead office to execute this review plan. For further information, contact Ms. Kimberly Otto, DDNPCX review manager, at (251) 694-3842.

3. I approve this review plan and the request for exclusion from IEPR. The approved review plan is subject to change as circumstances require, consistent with study development under the project management business process. Subsequent revisions to this approved review plan due to significant changes in the study or level of review will require new written approval from this office.

4. The point of contact for this action is David Bauman at (404) 562-5202 or David.J.Bauman@usace.army.mil.

Digitally signed by HIBNER.DANIEL.HARRY.1083075526

DANIEL H. HIBNER, PMP
Brigadier General, USA
Commanding

GULFPORT HARBOR REVIEW PLAN
17 October 2023

1. OVERVIEW
This review plan (RP) defines the scope and level of peer review for the following study:

- **Study Name:** Gulfport Harbor Project
- **P2 Number:** 496689
- **Federal Project:** Port of Gulfport, Gulfport, MS
- **Decision Document - Type:** Integrated Feasibility Report and Supplemental Environmental Impact Statement (SEIS)
- **Project Type:** Single Purpose Deep Draft Navigation
- **Congressional Approval Required (Yes/No):** Yes
- **District:** Mobile District (SAM)
- **Major Subordinate Command (MSC):** South Atlantic Division (SAD)
- **Review Management Organization (RMO):** Deep Draft Navigation Planning Center of Expertise (DDNPCX)
- **Review Plan (RP) Contacts:**
  - **District:** Planner, 251-694-4019
  - **MSC:** Policy and Legal Compliance Review Manager, 404-562-5202
  - **RMO:** DDNPCX Review Manager, 251-694-3842

2. KEY REVIEW PLAN DATES

Action	Date - Actual[1]
RMO Endorsement of RP	21 Sep 23
MSC Approval of RP	27 Nov 23
Independent External Peer Review (IEPR) Exclusion Approval	27 Nov 23
Has RP changed since PCX endorsement?	No
Last RP revision[2]	N/A
RP posted on District Website	Pending
Congressional notification[3]	Pending

[1]Date action occurred or 'pending' if not yet approved.
[2]Enter 'none' if no updates have been made since approval.
[3]Date RIT notified Congress of IEPR decision.

3. MILESTONE SCHEDULE

Action	Date - Scheduled	Date – Actual	Status – Complete?
Feasibility Cost Sharing Agreement Signed	04/19/23	04/19/23	Yes
Alternatives Milestone Meeting (AMM)	07/19/23	07/19/23	Yes
Tentatively Selected Plan (TSP)	10/18/24		
Release Draft Report to Public	12/13/24		
Agency Decision Milestone (ADM)	04/09/25		
Final Report Transmittal	11/21/ 25		
Chief's Report	04/17/26		

4. BACKGROUND

- **RP References:**
  - Engineer Regulation (ER) 1165-2-217, Civil Works (CW) Review Policy, 1 May 2021
  - Engineer Circular (EC) 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
  - EP 1165-2-61, Planning Feasibility and Post-Authorization Study Procedures and Report Processing Requirement, 1 July 2023
  - Director's Policy Memorandum (DPM) CW Programs 2018-05, Improving Efficiency and Effectiveness in USACE CW Project Delivery (Planning Phase and Planning Activities), 3 May 2018
  - Director of Civil Works (DCW) Memorandum, Revised Delegation of Authority in Section 2034(a)(5)(A) of the Water Resources Development Act of 2007 (WRDA 2007), as amended (33 U.S.C. 2343), 7 June 2018
  - Planning Bulletin (PB) 2018-01, Feasibility Study Milestones, 26 September 2018
  - DPM 2019-01, Policy and Legal Compliance Review, 9 January 2019
  - Gulfport Harbor Project Management Plan, July 2023
  - SAD Quality Management Plan, 2020

- **Authority**: The Gulfport Harbor Feasibility Study is authorized by Section 216 of the Flood Control Act of 1970 (33 U.S.C 549a) which authorizes the Secretary of the Army, acting through the Chief of Engineers, to review the operation of the Gulfport Harbor Federal project due to significantly changed physical, economic, or environmental conditions and to report to Congress with recommendations on the advisability of modifying the structures or their operation.

- **Sponsor**: Mississippi State Port Authority (MSPA)

- **SMART Planning Status**: The study is schedule-compliant with SMART Planning, but study cost is expected to exceed $3M. The study had a successful AMM on 19 July 2023. The project delivery team (PDT) is currently formulating an initial array of alternatives, developing its plan formulation strategy, and scoping modeling needs.

- **Project Area**: Gulfport Harbor, Mississippi, is located south of the City of Gulfport in Harrison County, Mississippi, within city limits and is approximately seven miles south of Interstate-10, approximately 80 miles west of Mobile, Alabama, and 80 miles east of New Orleans, Louisiana.

  The Port of Gulfport encompasses approximately 300 acres and is located on the north shore of the Mississippi Sound within 5 miles of the Gulf Intracoastal Waterway (GIWW) and 10 miles from the Gulf of Mexico (Gulf) and Gulf Island National Seashore. The Port is constructed on fill over former open-water bottom areas in Mississippi Sound and includes the East Pier, North Harbor, West Pier, and Commercial Small Craft Harbor. Access to the Port is via a deep draft channel and a commercial small craft channel (8 feet deep).

The Federal navigation channel is 300 feet wide in the inner channel (Sound Channel) and maintained to a depth of -36 feet mean lower low water (MLLW) within Mississippi Sound. The outer channel (Bar Channel) from Ship Island south to the safety fairway is 400 feet wide with a depth of -38 feet MLLW. The Port's North Harbor (Inner Harbor) is maintained to a depth of -32 feet MLLW, while the South Harbor (Outer Harbor) and Gulfport Turning Basin, which are approximately 1,320 feet wide, are maintained to a depth of -36 feet MLLW. The depths provided do not include 2 feet of allowable over depth and 2 feet of advanced maintenance.

- **Problem Statement**: Vessels are restricted to a maximum loaded depth of 36 feet, the authorized project depth. Larger vessels that call upon the harbor experience delayed transits in the channel and are required to light-load or use smaller, less efficient vessels due to draft restrictions. Existing channel depths limit ship cargo capacity and thus lead to a loss of transportation cost savings available from economies of scale associated with larger, more efficient vessels or with the ability to load the existing fleet more efficiently. In addition, insufficient widths restrict larger vessels from calling at the Port of Gulfport.

  The channel experiences sand shoaling from the western tip of Ship Island. This shoaling may increase in the future, and channel depth can be complicated to maintain in the Northern Gulf of Mexico. The approximately 21-mile channel passes to the west of Ship Island and requires annual dredging and disposal. The harbor and channel section north of the barrier islands have a history of fluid muds, which make it difficult to define available navigable depth.

- **Study/Project Goals and Objectives:** The goal of the study is to identify the National Economic Development (NED) plan while maximizing benefits across the other three accounts - Regional Economic Development, Environmental Quality, and Other Social Effects. The objective of this study is to evaluate navigation improvements at the Port of Gulfport that reduce transportation costs and operational inefficiencies over the 50-year period of analysis.

- **Without Project Condition:** Significant changes have been observed in the world fleet over the past two decades, with larger vessels (4,000+ twenty-foot equivalent units (TEUs)) becoming more prevalent. Following the opening of the expanded Panama Canal in 2016, larger container vessels (12,000+ TEUs) have been calling U.S. Ports, particularly on the East Coast of the United States, from Asia. As larger vessels are being built and deployed to the U.S. East Coast, more of the 7,000-12,000 TEU ships are available to be utilized along the Gulf Coast but require deeper channels.

  The Port of Gulfport is the third largest container port on the Gulf of Mexico. It is currently expanding its container terminal, which is expected to result in increased container throughput and larger container vessels utilizing the Port. The future without project condition (FWOP) provides the basis from which alternative plans are formulated and impacts are assessed. Absent the project, transportation

inefficiencies will continue with transportation cost savings remaining unrealized. Existing channel depths will continue to restrict larger vessels and hamper the potential growth of the Harbor. Moreover, the opportunity to reduce maintenance dredging requirements will not be realized.

- **National Environmental Policy Act (NEPA) Document Level:** At this time, potential impacts to the resources in the study area are not well defined. Past NEPA actions associated with the Gulfport Harbor navigation channel were analyzed at an EIS level to address those previous significant impacts. For this study, scoping indicates the NEPA level of a SEIS may be required to address anticipated significant impacts. Assessment of the findings from hydrodynamic modeling of ocean current alterations posed by the proposed channel expansion will determine the level of NEPA adequate to address significant impacts.

- **Description of Action:** The study will analyze navigation improvements along 21 miles of channel and will consider alternatives that provide transportation cost savings, including deepening the channel from -40 to -46 feet MLLW in one-foot increments, realigning the channel entrance, modifying channel widths, and modifying the turning/anchorage basin. The study will also evaluate alternatives to reduce existing and future O&M requirements related to shoaling through sediment control structures at areas of concern and evaluating increased advanced maintenance. The study will evaluate dredged material placement sites available, including identifying beneficial use options.

- **Federal Interest**: The federal interest in this study is consistent with the federal government objective for water and related land resources planning: to contribute to NED consistent with protecting the Nation's environment. The USACE is authorized to carry out Civil Works water resources projects for navigation to ensure safe, reliable transportation, and demonstrated with consideration of a reduction in transportation costs towards a NED Plan with a benefit to cost ratio (BCR) above 1.0. Preliminary analysis of the vessel traffic and commodities in Gulfport Harbor shows that there is Federal interest in this study. Parametric costs of potential solutions range between $300 - $600M.

- **Risk Identification:** The study has a range of risks and uncertainties that are listed below. These risks will be managed. The study and project implementation are not expected to be inhibited by the risks.
  - **Economics:** Uncertainty with commodity forecast and design vessel.
  - **Engineering:** Results of hydrodynamic modeling may indicate changes which may lead to a need for further modeling to support evaluation of environmental impacts.
  - **Environmental:** Level of impacts attributed to ocean current circulation changes are unknown at this time. Due to expected cost of more than $2M, sediment sampling is deferred to preconstruction engineering and design (PED), the study will leverage historical sediment testing data.

- **Cultural Resources:** Cultural resources anomalies could be found during the Phase 1 survey. If found, such anomalies would require identification during a Phase 2 survey (to determine whether such anomalies are cultural resources). Risk management includes performing a Phase 2 survey on identified anomalies during PED.

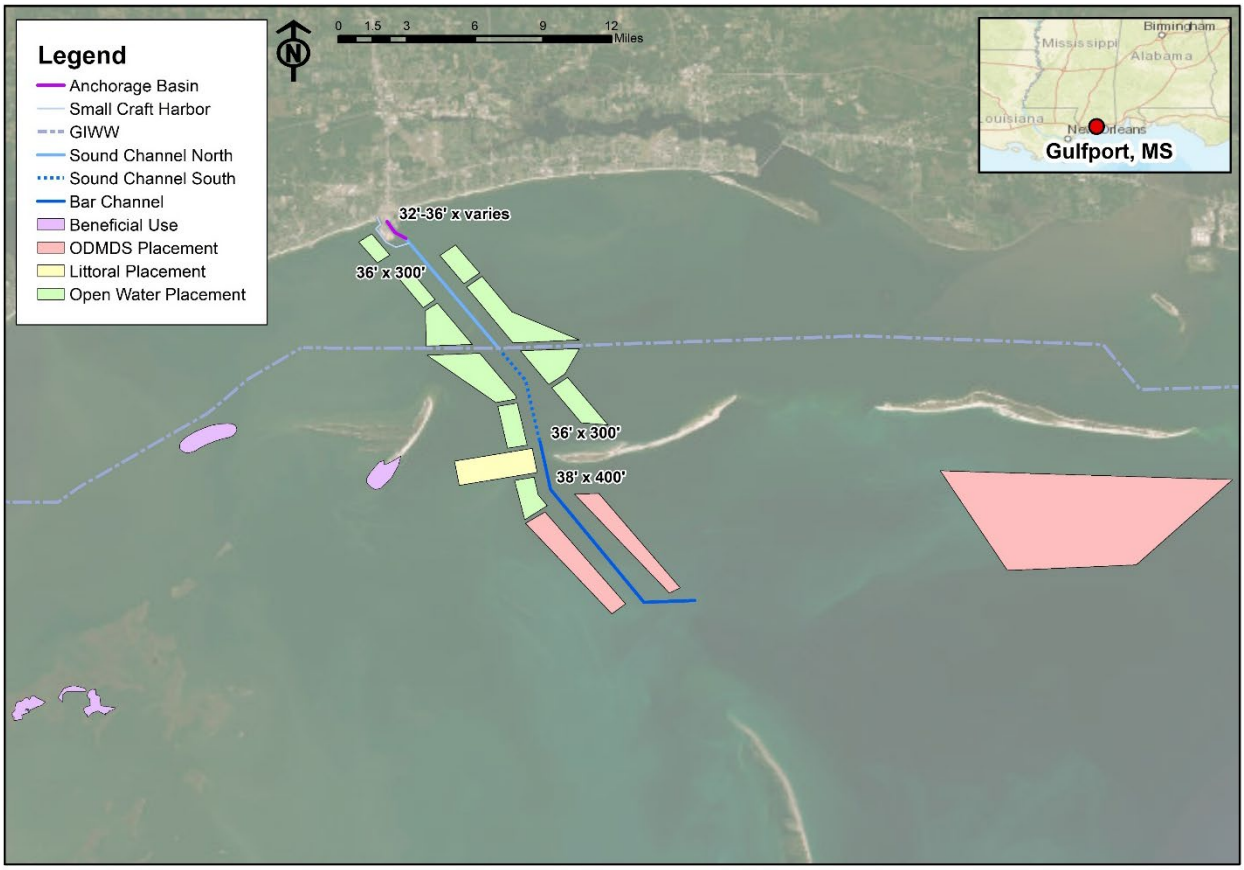

Figure 1. Gulfport Harbor Federal Navigation Channel

5. FACTORS AFFECTING THE SCOPE AND LEVEL OF REVIEW

A. Is it likely that part(s) of the study will be challenging (ER 1165-2-217, paragraph 3.6.1)?

Shipwrecks are known to have occurred in the vicinity of the channel and Mississippi Sound. A Phase 1 survey will be conducted during the study phase to determine potential impacts. The team will coordinate closely with the National Park Service in event cultural resources are identified in the channel near Ship Island.

There are also concerns about potential traffic impacts near some Environmental Justice communities. The Forest Heights community and serval other communities along Turkey Creek in Gulfport lie adject to the railway and Highway 49, which is a

main thoroughfare from the Port to the interstate. These communities have expressed concerns about increased vehicle and rail traffic along these routes. The team and non-Federal sponsor will work with these communities and address these concerns as the study progresses.

B. Provide a preliminary assessment of where the project risks are likely to occur and assess the magnitude of those risks (ER 1165-2-217, paragraph 3.6.1/3.6.2.2). The study is leveraging existing data: geotechnical data, Mississippi Coastal Improvements Program (MsCIP) modeling and data collection, and previous EIS efforts from 2009 and 2017.

Study efforts will include PDT use of historical geotechnical borings to characterize project materials. Historical borings were determined acceptable as such were performed along the channel with adequate coverage spatially and to depth. Accordingly, the risk of using historical geotechnical borings for study phase efforts is registered as low.

Cultural resources anomalies could be present in the study area; therefore, a Phase I survey will be performed during the feasibility study. Should survey efforts identify anomalies that could be cultural resources, a Phase 2 survey will be performed during PED. This risk has been assessed as low.

Sediment sampling is being deferred to PED when water quality certification will be pursued from the Mississippi Department of Marine Resources (MDMR). For the feasibility phase, data from previous sediment testing events will be leveraged which include testing completed for the deepening project of which an EIS was conducted in 2009 In addition, sediment testing data from the environmental impact statement conducted in 2017 will also be leveraged to the extent applicable. These risks are registered as low to medium.

The hydrodynamic modeling approach is scoped with assumption of no significant impacts anticipated but may require more modeling based on initial findings and environmental agency feedback. Type/density of material may increase dredge cost. To manage this risk, material characterization will be assessed from historical data This risk is registered as medium to high.

Level of impacts attributed to ocean current circulation changes are unknown at this time. If circulation changes are identified through hydrodynamic modeling results, the PDT will assess impacts to those habitats. NEPA compliance is scoped to SEIS. This risk is registered as low to medium.

C. Is there a significant threat to human life associated with aspects of the study or failure of the project or proposed project (ER 1165-2-217, paragraph 3.6.2.2.2)? Channel improvements will be justified through a savings in transportation costs and will not be justified by life safety. There are no significant threats to human life associated with either construction of the proposed improvements, operation and

maintenance of the proposed project, or with project failure. Should the project not perform as expected, the impact would be a lower-than-expected benefit to NED, which does not impact human life and/or safety. Non-performance of the project would not affect the well-being of the public and/or environment but may negatively affect transportation costs for commodities coming in through area facilities. There is no residual risk to account for in this project due the fact that the project purposed does not address or address or directly affect human health and safety. This life safety assessment has been reviewed by the Chief of Engineering, Mobile District and has his concurrence.

D. Does/will the study/project have significant interagency interest (ER 1165-2-217, paragraph 3.7.2.2)?
Significant interagency interest has been registered from State and Federal resource agencies with regards to beneficial use of dredged material. The MDMR and MS Secretary of State are concerned about channel material being placed at Biloxi Marsh, located in Louisiana, stating material removed from Mississippi waterways has monetary value that can be bought, but donation of a state resource is not approvable. Ongoing interagency coordination will monitor and address this as it pertains to the project. This concern from MDMR is a consideration in the study and not expected to impact the planning process nor the project. Regardless of the placement site location, it must meet the criteria of having an existing permit and a sponsor to cost share the expense, if costs are greater than placing at the Pascagoula Ocean Dredged Material Disposal Site (ODMDS). Tribal nations have yet to respond to initial notification of this project.

E. Is the estimated total cost of the project greater than $200 million (ER 1165-2-217, paragraph 6.4.1)? Yes, the estimated total cost, including mitigation, is expected to be greater than $200 million (M); currently estimated between $300 - $600M.

F. Has the Governor of an affected state requested a peer review by independent experts (ER 1165-2-217, paragraph 6.4.2)?
No, the Governor of Mississippi has not requested peer review by independent experts.

G. Has the Chief of Engineers determined that the project study is controversial due to significant public dispute over the size, nature, or effects of the project or the economic or environmental costs or benefits of the project (ER 1165-2-217, paragraph 6.4.3))?
No. The Corps held a public meeting on 20 June 2023 to discuss any public concerns associated with proposed port modifications. Meeting participants were generally supportive of the study.

Early comments from the public and agencies did not indicate that there would be significant dispute during the study. However, utilization of material for beneficial use has been mentioned as a priority for both the environmental agencies and the State of Mississippi.

Coordination of beneficial use opportunities to ensure a successful, economically feasible placement strategy for the dredged material could be an important component of the study and PED Phase. Based on the path forward laid out by the PDT to the environmental agencies there is not expected to be any dispute related to economic/environmental costs or benefits.

H. Has another agency requested IEPR due to significant environmental impacts (ER 1165-2-217, paragraph 6.5.1.1)?
No agency has made a request for IEPR.

I. Is the information in the decision document or anticipated project design likely to contain influential scientific information or be a highly influential scientific assessment – i.e., be based on novel methods, involve innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices (ER 1165-2-217, paragraphs 6.5.2 and 7.4.1.1)?
No, the anticipated design is expected to use typical methods and information used throughout the industry. Novel methods will not be utilized, and methods, models, or conclusions will not be precedent setting or likely to change prevailing practices.

J. Will the study/project require an environmental impact statement (ER 1165-2-217, paragraph 6.6.1)?
Yes. The PDT currently assumes an EIS because of the potential for significant impact on environmental resources; however, this may be reduced to an EA, if determined appropriate, as further analysis is completed.

K. Is the project expected to have more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources (ER 1165-2-217, paragraph 6.6.1.2)?
A Phase 1 survey will be completed as part of the study. The results of the survey will be coordinated with State Historic Preservation Office and Tribal nations as part of the Section 106 process. Should cultural resources be identified, they will be evaluated in accordance with Section 106 of the National Historic Preservation Act (NHPA), which includes avoidance and minimization of impacts.

L. Is the project expected to have substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures (ER 1165-2-217, paragraph 6.6.1.3)?
At this time, no substantial adverse impacts on fish and wildlife species or their habitats are expected prior to the implementation of mitigation measures. Direct impacts of the plans are likely be limited to the location and time of dredging during project implementation. Direct and indirect impacts will be evaluated and addressed to ensure the project is environmentally acceptable.

M. Is the project expected to have, before implementation of mitigation measures, no more than a negligible adverse impact on an endangered or threatened species or their designated critical habitat (ER 1165-2-217, paragraph 6.6.1.4)?
Yes. Endangered and threatened species and their designated critical habitat, including gulf sturgeon, are present in the study area. It is not anticipated at this time, but the project may have more than a negligible adverse impact on these species or their designated critical habitat prior to the implementation of mitigation measures. Avoidance of adverse environmental impacts will be considered. However, such effects will be appropriately coordinated with the resource agencies and jeopardy to such species, or their designated critical habitat, is not expected. Any recommendation made will be environmentally acceptable and ensure compliance with environmental laws and regulations.

N. Does the project study pertain to an activity for which there is ample experience within the USACE and industry to treat the activity as being routine (ER 1165-2-217, paragraph 6.6.2.2)?
Yes, the final integrated feasibility report and supporting documentation will contain standard engineering, economic, and environmental analyses and information. The proposed project is for dredging and will include the Federal Standard, or least cost, environmentally acceptable, technically feasible dredged material placement plan for which there is ample experience within the USACE and industry to be considered routine. Novel methods will not be utilized, and methods, models, or conclusions will not be precedent setting or likely to change policy decisions.

6. REVIEW EXECUTION PLAN

This RP section provides a general description of each type of review and identifies the reviews anticipated for this study/project.

A. Types of Review

1) **District Quality Control (DQC).** DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements of the project management plan. All decision documents (including data, analyses, environmental compliance documents, etc.) undergo DQC review. Additionally, DQC of milestone submittals is required (PB 2018-01).

2) **Agency Technical Review (ATR).** ATR is performed to assess whether study/project analyses are technically correct and comply with USACE guidance and whether documentation explains the analyses and results in a clear manner. Further, the ATR team will ensure that proper and effective DQC has been performed (as assessment of which will be documented in the ATR report) and will ensure that the product is consistent with established criteria, guidance, procedures, and policy. ATR of the draft and final decision documents and supporting analyses is required (ER 1165-2-217, paragraph 5.3). Targeted reviews may be scheduled as needed.

3) **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 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. The PDT performs a risk-informed assessment whether IEPR is appropriate and documents that assessment/ recommendation in the RP (ER 1165-2-217, paragraph 6.5.2). Should IEPR be required, the RMO should be contacted at least three months in advance of the anticipated start of the concurrent review period to allow sufficient time to obtain contract services. If required, IEPR will be managed by an Outside Eligible Organization (OEO), external to USACE. Neither the public nor scientific or professional societies would be asked to nominate potential external peer reviewers.

4) **Cost Engineering Review**. All decision documents will be coordinated with the Cost Engineering and ATR Mandatory Center of Expertise (MCX). The MCX will provide the cost engineering expertise needed on the ATR team and will provide certification of cost estimates. The RMO is responsible for coordinating with the MCX for participation on the ATR team. Cost reviews will occur as part of the draft/final report ATRs but the schedule for specific reviews may also vary. Accordingly, the PDT should coordinate closely review related needs with both the MCX and RMO.

5) **Model Review and Approval/Certification.** EC 1105-2-412 provides the process and requirements for ensuring the quality of planning models. The EC mandates use of certified or approved planning models for all planning activities to ensure that planning products are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions regarding the availability of data, transparent, and described in sufficient detail to address any limitations of the model or its use.

6) **Policy and Legal Compliance Reviews (P&LCRs).** All decision documents will be reviewed throughout the study process for compliance with law and policy. EP 1165-2-61 and DPM CW/DCW memos, provide guidance on policy and legal compliance reviews. These reviews culminate in determination whether report recommendations, supporting analyses, and coordination comply with law and policy and whether the decision document warrants approval or further recommendation to higher authority by the home MSC Commander.

7) **Public Review.** The home District will post the RMO endorsed and MSC approved RP on the District's public website. Internet posting of the RP provides opportunity for the public to comment on that document. It is not considered a formal comment period, and there is no set timeframe for public comment. The PDT should consider any comments received and determine if RP revisions are necessary. During the public comment period, the public will also be provided with the opportunity to review and comment on the report. Should IEPR be required, public comments will be provided to the IEPR panel for consideration.

B. Anticipated Project Reviews and Estimated Costs

Table 1 provides the estimated schedule and cost for reviews anticipated for this study.

Table 1: Gulfport Harbor Study – Anticipated Reviews

Product to Undergo Review	Review	Start Date	End Date	Cost	Complete?
Pre-AMM Submittals	DQC	06/21/23	07/13/23	$5,850	Yes
Pre-TSP Milestone Submittals	DQC	09/20/24	10/04/24	$8,450	No
Draft Feasibility Report and SEIS	DQC	11/11/24	11/29/24	$52,000	No
	ATR[1]	12/13/24	01/27/25	$83,200	No
	IEPR	N/A			
	P&LCR	12/13/24	01/27/25	N/A	No
Pre-ADM Submittals	DQC	03/27/25	04/01/25	$9,100	No
Final Feasibility Report and SEIS	DQC	07/28/25	08/22/25	$52,000	No
	ATR	08/25/25	10/10/25	$76,700	No
	P&LCR	10/20/25	11/21/25	N/A	No
Targeted Reviews	N/A				
In-kind Products[2]	N/A				
ATR Lead Participation in Milestone Meetings		As scheduled	As scheduled	$1,500	

C. District Quality Control

The home district shall manage DQC and will appoint a DQC Lead to oversee that review (ER 1165-2-217, paragraph 4.4.2).

[1] The basis for estimated ATR and IEPR costs (if applicable) is provided in Attachment 2 of this RP, which must be removed prior to posting on the District's public website.
[2] Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. No in-kind products or analyses will be developed by the non-Federal sponsor.

1) **Review Team Expertise.** Table 2 identifies the required expertise for the DQC team.

Table 2: Required DQC Expertise

DQC Team Disciplines	Expertise Required
DQC Lead	The DQC Lead should be a senior professional with extensive experience preparing Civil Works decision documents and conducting DQC. The lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc.).
Plan Formulation	The plan formulation reviewer should be a water resources planner with experience in leading a team through a deep draft navigation (DDN) channel improvements study and analysis of dredged material placement requirements.
Economics - Report[3]	The economics reviewer should be a DDN economist with experience in performing economic evaluations for channel deepening/widening projects. Experience with evaluating containerized and bulk trade is required.
Environmental Resources	The environmental reviewer should have expertise in evaluating the impacts associated with DDN improvements/ dredging projects and dredged material placement requirements, including the potential for beneficial use assessments. The reviewer should also be experienced with environmental coordination and NEPA requirements for DDN projects.
Cultural Resources	The cultural resources reviewer should have expertise in evaluating the impacts associated with DDN channel improvement and dredging projects as well as extensive knowledge of underwater archaeology. The reviewer should also be familiar with the environmental coordination and NEPA/NHPA requirements for DDN projects.
Hydrology, Hydraulics, and Coastal (HH&C) Engineer	The HH&C engineering reviewer should have experience designing DDN channels, evaluating channel maintenance and placement requirements, assessment of beneficial use, and thorough understanding of open channel dynamics. Experience with HH&C models used in the study is required (Table 6).
Geotechnical Engineer/ Geologist	The reviewer will have experience performing geotechnical evaluations for DDN channel improvement projects, including evaluating the behavior of soils, site characterization, material management, slope stability, and the analysis and placement of dredged material in an ODMDS and assessment of beneficial use requirements.
Cost Engineer	The cost engineering reviewer will have experience evaluating cost requirements for a DDN project (channel deepening, widening, placement site construction, beneficial use, etc.). Experience with cost engineering models to be used in the study is required (Table 6).
Operations	The operations reviewer should have experience in the operation and maintenance of DDN projects to include channel

[3] The economics DQC team member will be identified by the DDNPCX (OPORD 2012-15).

DQC Team Disciplines	Expertise Required
	maintenance dredging and assessment of beneficial use options.
Real Estate	The real estate reviewer should have expertise in the real estate requirements of DDN improvement projects.

2) **Documentation of DQC**. Quality Control should be performed continuously throughout the study. DrChecks software will be used to document DQC review comments, responses, and issue resolution. Certification of DQC completion is required at the draft and final report stages. Documentation of DQC should follow the District Quality Manual and the MSC Quality Management Plan. An example DQC Certification statement is provided in ER 1165-2-217 (Appendix D).

   Documentation of the completed DQC review (i.e., all comments, responses, issue resolution, and DQC certification) will be provided to the MSC, RMO, and ATR Team leader prior to initiating an ATR. The ATR team will assess the quality of the DQC performed and provide a summary of that assessment in the ATR report. Missing or inadequate DQC documentation can result in the start of subsequent reviews being delayed (ER 1165-2-217, paragraph 5.2.2).

D. Agency Technical Review

ATR is mandatory for draft and final decision documents and supporting analyses (ER 1165-2-217, paragraph 5.3). The RMO will manage the ATR. ATR will be performed by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR will be performed by a team whose members are certified or approved by their respective Communities of Practice (CoPs) to perform reviews. The RMO will identify an ATR lead and ATR team members. Neither the home District nor the MSC will nominate review team members. The ATR team lead will be from outside the home MSC. The ATR team lead is expected to participate in the study's milestone meetings (PB 2018-01), an invitation to which must be extended by PDT Leads.

1) **Review Team Expertise.** Table 3 identifies the anticipated disciplines and ATR team expertise required for study efforts.

Table 3: Required ATR Team Expertise

ATR Team Disciplines	Expertise Required
ATR Lead	The ATR lead will be a senior professional with extensive experience preparing CW decision documents and conducting ATR. The lead should have the skills to manage a virtual team through an ATR. The lead may serve as a reviewer for a specific discipline (e.g., plan formulation, economics, etc.).
Plan Formulation	The plan formulation reviewer should be a senior water resources planner, that is ATR certified, with experience in leading a team through a DDN channel improvements study and analysis of dredged material placement requirements.
Economics - Report	The economics reviewer should be a senior DDN economist with experience in performing economic evaluations for channel deepening/widening projects. Experience with evaluating containerized and bulk trade is required.
Economics - Model	This reviewer will evaluate the inputs and outputs of the economic models used in the study, HarborSym and RECONS.
Environmental Resources	The environmental reviewer should have expertise in evaluating the impacts associated with DDN improvement/ dredging projects and dredged material placement requirements, including requirements for beneficial use of dredged material. The reviewer should also be experienced with environmental coordination and NEPA requirements for DDN projects. If it is determined that mitigation is required, consultation with the ECO-PCX will be performed to include an expert on the team to assess mitigation planning documents.
Cultural Resources	The cultural resources reviewer should have expertise in evaluating the impacts associated with DDN channel improvement and dredging projects as well as extensive knowledge of underwater archaeology and Phase 1 cultural resource surveys. The reviewer should also be familiar with the environmental coordination and NEPA/NHPA requirements for DDN projects.

ATR Team Disciplines	Expertise Required
HH&C Engineer	The HH&C engineering reviewer should have experience designing DDN channels, evaluating channel maintenance and placement requirements, assessment of beneficial use, and thorough understanding of open channel dynamics. Experience with HH&C models used in the study is required (Table 6).
Geotechnical Engineer/ Geologist	The reviewer will have experience performing geotechnical evaluations for DDN channel improvement projects, including evaluating the behavior of soils, site characterization, material management, slope stability, and the analysis and placement of dredged material in an ODMDS and assessment of beneficial use requirements.
Cost Engineer	The cost engineering reviewer will be identified by the cost MCX and will have experience evaluating cost requirements for a DDN project (channel deepening, widening, placement site construction, beneficial use, etc.). Experience with cost engineering models to be used in the study is required (Table 6).
Operations	The operations reviewer should have experience in the operation and maintenance of DDN projects to include channel maintenance dredging, placement in an ODMDS, and assessment of beneficial use options.
Real Estate	The real estate reviewer should have expertise in the real estate requirements of DDN improvement projects.
Climate Preparedness and Resilience/ HH&C Climate	A member of the Climate Preparedness and Resiliency CoP or a HH&C Climate reviewer will participate on the ATR team. Another reviewer can fulfill this requirement if that reviewer has the required expertise.

2) **Documentation of ATR.** DrChecks will be used to document ATR comments, responses, and issue resolution. Comments should be limited to those needed to ensure product adequacy. All members of the ATR team should use the four-part comment structure (ER 1165-2-217, paragraph 5.8.3). If a concern cannot be resolved by the ATR team and PDT, it will be elevated to the vertical team for resolution using the issue resolution process identified in ER 1165-2-217. The comment(s) can then be closed in DrChecks by noting the concern has been elevated for resolution. The ATR Lead will prepare a Statement of Technical Review Report, for both draft and final decision documents (ER 1165-2-217, paragraph 5.11). Any unresolved issues will be documented in the ATR report prior to certification. The Statement of Technical Review (ATR completion) includes signatures from the ATR Lead, Project Manager, and RMO, and the Certification of ATR includes signatures from the District's Chiefs of Engineering and Planning Divisions.

E. Independent External Peer Review

1) **Decision on IEPR.** IEPR is managed outside of USACE and is typically conducted on studies. 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.

   Based upon the criteria identified in ER 1165-2-217 and the limited study/project scope (modification of an authorized and constructed project), the PDT's risk informed assessment that the study/project does not warrant IEPR is based upon the following, as documented in detail in Section 5 of this RP:

   The Chief of Engineers has not determined that the project study is controversial due to significant public dispute over the size, nature, or effects of the project or the economic or environmental costs or benefits of the project. Further, the Governor of Mississippi has not requested peer review by independent experts. Although the anticipated project cost is more than $200M (estimated between $300-$600M), the project is anticipated to have a similar footprint to the existing project and is for an activity for which there is ample experience within USACE and the industry to treat the activity as being routine. Project design and implementation will not utilize novel or precedent setting methods, nor is expected to have complex challenges. Further, there is minimal life safety risk from the project and potential project failure. No agency has requested an IEPR due to anticipated significant adverse environmental impacts. Therefore, the PDT's assessment is that the project would not benefit significantly from IEPR.

2) **Decision on Safety Assurance Review.** Safety Assurance Review is managed outside of the USACE and is performed on design and construction activities for any project where potential hazards pose a significant threat to human life. For SARs, a panel is convened to review the design and construction activities before construction begins and periodically thereafter until construction activities are completed.

   The District Chief of Engineering has assessed this navigation project and determined that it does not meet the criteria for conducting SAR:

   - The federal action is not justified by life safety and failure of the project will not pose a significant threat to human life.

   - The project does not involve the use of innovative materials or techniques where the engineering is based on novel methods; it does not present complex challenges for interpretations; it does not contain precedent-setting methods or models; and it does not present conclusions that are likely to change prevailing

practices. Proposed improvements are to an existing federal navigation project. Construction and maintenance techniques have been standardized and no new techniques are expected to be utilized for design and construction activities.

- The project design does not require redundancy, resiliency, or robustness as the design of navigation improvements at the Port of Gulfport will be based upon previously developed and utilized construction techniques which do not require redundancy, resiliency, and/or robustness.

- The project does not have unique construction sequencing or a reduced or overlapping design construction schedule.

F. Model Certification or 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 are any models and analytical tools used to define water resources management problems and opportunities; to formulate potential alternatives to address study area problems and take advantage of 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 a planning product. The selection and application of the model and assessment of input and output data is the responsibility of the users and is subject to DQC, ATR, and IEPR (if required). The following models may be used to develop the decision document.

Table 5: Planning Models

Model Name/Version (Discipline)	Brief Model Description and How It Will Be Used in the Study	Certification / Approval
HarborSym 1.5.8.3 (Economics)	HarborSym is a discrete event Monte-Carlo simulation model designed to facilitate economic analyses of proposed navigation improvement projects in coastal harbors. Incorporating risk and uncertainty, the model will be used to estimate transportation cost savings (benefits) attributable to fleet and loading changes under future with project conditions.	Certified
Regional Economic System (RECONS) (Economics)	RECONS is a regional economic impact modeling tool that estimates jobs, income, and sales associated with Corps CW spending and additional economic activities. The model will be used to estimate the regional economic impacts of project implementation.	Certified

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

Technology Initiative has identified many engineering models as preferred or acceptable for use in studies. These models should be used when appropriate. The selection and application of the model and the input and output data is the responsibility of the user and is subject to DQC, ATR, and IEPR (if required). The following models may be used to develop the decision document. The allowed engineering models shown in the table are already existing and more up-to-date, while the preferred models would need to be built or updated for use. Based on a risk informed decision making it was determined that the comparatively significant cost and time requirement to use the preferred models would not significantly reduce the risk to the planning decision based on the allowed models.

Table 6: Engineering Models

Model Name and Version (Discipline)	Brief Model Description and How It Will Be Used in the Study	Model Certification / Acceptance Status
Adaptive Hydraulic Modeling (ADH) (HH&C)	ADH is a state-of-the-art Adaptive Hydraulics Modeling system. It is capable of handling both saturated and unsaturated groundwater, overland flow, three-dimensional Navier-Stokes flow, and two- or three-dimensional shallow water problems. ADH contains other essential features such as wetting and drying and wind effects. It may be used to assess changes in three-dimensional hydrodynamics and salinity for the with and without project conditions which will assess environmental impacts.	CoP Preferred
Advance Circulation Model (ADCIRC) 2DDI (2003) (HH&C)	Finite element 2-D hydrodynamic model; the version 2DDI is vertically-integrated and solves a vertically-integrated continuity equation for water surface elevation; no storm or hurricane wind field models or statistical analysis tools are included with model, they must be acquired separately; ADCIRC performs well using Vince Cardone's planetary boundary layer model wind fields; statistical analyses using ADCIRC model storm surge simulations are compatible with the USACE Empirical Simulation Technique (EST) as well as joint probability methods. It will be used to provide forcing for ship simulation and to provide boundary conditions for other models.	CoP Preferred
Channel Design and Evaluation Tool (CADET)	Probabilistic risk analysis techniques to evaluate the accessibility of channel reaches for multiple vessel geometries, loading, and wave conditions. It will be used to determine underkeel clearance.	Allowed
CH3D-WES-Muliti-block Hydrodynamic Model (CH3D-WS-MB)	CH3D-WES-MB is a 3-D, multi-block hydrodynamic module of the GSMB. The model performs baroclinic hydrodynamic computations on a non-orthogonal curvilinear or boundary-fitted grid. Physical processes impacting circulation and vertical mixing	Allowed

Model Name and Version (Discipline)	Brief Model Description and How It Will Be Used in the Study	Model Certification / Acceptance Status
(HH&C)	that are modeled include tides, wind, wave radiation stress gradients, density effects (salinity and temperature), freshwater inflows, turbulence, and the effect of the earth's rotation. The boundary-fitted coordinate feature of the model provides grid resolution enhancement necessary to adequately represent the deep navigation channels and irregular shoreline configurations of the flow system. It may be used to assess changes in three-dimensional hydrodynamics and salinity for the with and without project conditions which will assess environmental impacts.	
ERDC Ship/Tow Simulator (HH&C)	The Ship/Tow Simulator features two bridges set up for real-time ship maneuvering, and were specifically developed for evaluating navigation channel designs, modifications, and safety issues. Located at ERDC, Coastal and Hydraulics Laboratory, the model portrays currents, wind and wave conditions, shallow water effects, bank forces, ship handling, ship to ship interaction, fender forces, anchor forces, and tug assistance. It will be used to evaluate and optimize the channel design.	Allowed
Abbreviated Risk Analysis, Cost Schedule Risk Analysis (Cost Engineering)	Cost risk analyses identify the amount of contingency that must be added to a project cost estimate and define the high-risk drivers. The analyses will include a narrative identifying the risks or uncertainties. During the alternatives evaluation, the PDT will assist the cost engineer in defining confidence/risk levels associated with the project features within the abbreviated risk analysis. For the Class 3 estimate, an evaluation of risks will be performed using Crystal Ball Cost Schedule Risk Analysis will be used for construction costs over $40 million or the Abbreviated Risk Analysis for projects under $40 million.	CW Cost Engineering and ATR MCX Mandatory
Corps of Engineers Dredge Estimating Program (CEDEP) (Cost Engineering)	CEDEP is the required software program that will be used for dredging estimates using floating plants. CEDEP contains narrative documenting reasons for decisions and selections made by the cost engineer. Software distribution is restricted as it is considered proprietary to the Government.	CW Cost Engineering and ATR MCX Mandatory
Microcomputer Aided Cost Engineering System (MCACES), MII (Cost Engineering)	Microcomputer Aided Cost Engineering System (MCACES) is the cost estimating software program tools used by cost engineering to develop and prepare Class 3 Civil Works cost estimates.	CW Cost Engineering and ATR MCX Mandatory

Model Name and Version (Discipline)	Brief Model Description and How It Will Be Used in the Study	Model Certification / Acceptance Status
Total Project Cost Summary (TPCS) (Cost Engineering)	The TPCS is the required cost estimate document that will be submitted for either division or HQUSACE approval. The Total Project Cost for each Civil Works project includes all Federal and authorized non-Federal costs represented by the Civil Works Work Breakdown Structure features and respective estimates and schedules, including the lands and damages, relocations, project construction costs, construction schedules, construction contingencies, planning and engineering costs, design contingencies, construction management costs, and management contingencies.	CW Cost Engineering and ATR MCX Mandatory

G. Policy and Legal Compliance Reviews

In accordance with DPM CW 2019-01, P&LCRs for draft and final planning decision documents are delegated to the MSC responsible for the execution of the study.

With input from MSC and Headquarters, USACE (HQUSACE) functional leaders and through collaboration with the Chief of Office of Water Project Review (OWPR), the MSC Chief of Planning and Policy is responsible for establishing a competent interdisciplinary P&LCR team (DPM 2019-01). The composition of the policy review team will be drawn from HQUSACE, the MSC, the Planning Center of Expertise (PCX), and other review resources as needed. The identification of Counsel members will follow the procedures set forth by the HQUSACE Chief Counsel, as coordinated by HQUSACE and MSC Counsel functional leaders. The MSC Chief of Planning and Policy and the Chief of OWPR will collaborate to identify and endorse a P&LCR Manager from among the P&LCR team identified for the study. The manager may be a MSC, PCX, or HQUSACE employee. The team is identified in Attachment 1 of this RP.

The P&LCR team will:

- Provide advice and support to the PDT and decision makers at the District, MSC, HQUSACE, and Assistant Secretary of the Army (CW) levels.
- Engage at both the MSC and HQUSACE levels, ensuring that the vertical teaming aspect of SMART planning is maintained.
- Help guide PDTs through project development and the completion of policy and legally compliant documents, identifying policy and legal issues as early as possible such that issues can be addressed while minimizing impacts to study and project costs and schedules.
- Provide impartial and unbiased recommendations, advice, and support to decision makers.