Attachment 2

TETRA TECH

Coastal Engineering Project Evaluation Tool in Support of DNER Regulatory Process

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Submitted to: Department of Natural and Environmental Resources

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TABLE OF CONTENTS

APPENDICES

ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DA	Department of the Army
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FWS	United States Fish and Wildlife Service
GC	General Condition
MLLW	Mean Lower Low Water
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NWP	Nationwide Permit
PCN	Pre-construction Notification
PRCZMP	Puerto Rico Coastal Zone Management Program
RGL	Regulatory Guidance Letter
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

1.0 BACKGROUND

The Department of Natural and Environmental Resources (DNER) is the lead agency for the implementation of the Puerto Rico Coastal Zone Management Program and the administration, conservation, management, and surveillance of Puerto Rico's maritime-terrestrial public trust lands (maritime-terrestrial zone, territorial waters, and submerged lands). DNER through the Puerto Rico Coastal Zone Management Program has funded the development of the Coastal Engineering Handbook (CEH) series. Parts I and II of the CEH were intended to provide coastal and civil engineers, as well as planners, regulatory agencies, and the community at large, rapid access to coastal protection alternatives suitable for use in Puerto Rico, best coastal engineering practices, *do's and don'ts*, examples of successfully constructed structures, as well as nature-based alternatives to protect life, property and enhance ecosystem services, including sea level rise adaptation and erosion control. Tetra Tech prepared the Coastal Engineering Handbook - Part I, consisting of best coastal engineering practices and CEH - Part II focusing on nature-based alternatives to build coastal resilience. This CEH Part III builds upon previous CEH Parts I and II and examines the existing coastal laws and regulations to identify process gaps, project evaluation processes, analytical tools, and access to critical information which may affect decision making.

2.0 PROJECT OBJECTIVES AND GOALS

The primary goal of this project was to develop interpretive guidelines and a model workflow in support of regulatory processes that integrate coastal engineering, ecological concepts, policies, and procedures into a consistent whole, explaining policies for protecting natural resources, life and property contributing to facilitate the understanding and application of Puerto Rico's coastal policies. The development of the guidelines and the analysis conducted concentrated on the evaluation of current permit application review and analysis processes, as well as in the integration of sediment management analysis, ocean dynamics understanding, coastal storm risk management, erosion control and sea level rise adaptation, among others.

CEH Part III builds upon parts I and II of the handbook and Puerto Rico policies such as DNER Regulation No. 4860 of December 29, 1992, known as the Regulation for the Use, Surveillance, Conservation and Administration of the Territorial Waters, the Areas Submerged Under These and the Maritime Terrestrial Zone, to generate specific recommendations, proposed guidelines and potential amendments to Regulation 4860 to integrate sediment management, ocean dynamics, wave climate, storm risk management, erosion control and sea level rise adaptation concepts currently not considered by this Regulation. CEH Part III also examines disciplines involved in the planning and design of coastal projects and formulates recommendations regarding disciplines and approaches for projects review and evaluation by regulatory agencies. Finally, these elements of policy are highly relevant to the discussion of a potential Puerto Rico Coastal Law.

3.0 PROJECT JUSTIFICATION AND NEED

Tetra Tech developed the Coastal Engineering Handbook Part I (CEH Part I) as a guide for planners, engineers, and regulators in the public and private sectors conducting work on coastal and nearshore environments. This first Coastal Engineering Handbook was intended to support the administration and implementation of Regulation 4860 (1992, as amended) pertaining to coastal public trust lands use, surveillance, conservation and administration of submerged lands, emphasizing on best engineering and management practices (*do's and don'ts*) adapted to Puerto Rico's coastal conditions, geomorphology and wave climate in the 2020s.

The Coastal Engineering Handbook Part II (CEH Part II) was developed to serve as a supplement to the CEH Part I, in support of DNER Regulation 4860 administration, as well as to serve as a reference for coastal areas and marine resources

management, coastal public trust lands administration, maritime-terrestrial public lands delineation for the design and adoption of science-based policy, nature-supported alternatives and principles to mitigate impacts and increase coastal resiliency.

The Coastal Engineering Handbook Part III (CEH Part III) provides clear interpretive guidelines and a model workflow in support of regulatory processes that integrate coastal engineering, ecological concepts, policies, and procedures into a consistent whole, explaining policies for protecting natural resources, life and property contributing to facilitate the understanding and application of Puerto Rico's coastal policies. CEH Part III provides specific recommendations, proposed guidelines, and recommendations for potential amendments to Regulation 4860, supra, to integrate sediment management, ocean dynamics, wave climate, storm risk management, erosion control and sea level rise adaptation concepts currently not considered by this Regulation.

4.0 METHODOLOGICAL APPROACH AND SOURCES OF INFORMATION

Tetra Tech's technical team conducted a literature review and case studies of natural and nature-based features that have performed as intended in similar coastal environments establishing a Benefit-Cost Analysis procedure to assess viability. Differentiating coastal environments and analyzing different coastal scenarios determines the optimal pairing of a suite of potential interventions suited to a particular coastal landscape unit. Interventions consistent with recommendations from CEH Parts I and II.

A critical process parameters analysis and a comprehensive analysis of process quality attributes (CQA) has been conducted. These analyses facilitate the identification of gaps and process weaknesses or deficits. This method is typically used in the design process to generate a process qualification.

The sources of Information utilized are:

- DNER REGULATION 4860 (1992, as amended)
- OGPe Project Application and Requirements
- Puerto Rico Joint Permit Application (USACE, DNER, PRPB)
- USACE Permit Application Requirements
- USEPA Permit Application

Project evaluation processes and requirements employed in other U.S. jurisdictions have been reviewed and incorporated as deemed applicable in the recommended analytical processes.

5.0 JURISDICTIONAL DEFINITIONS

In order to understand the permitting evaluation process, the permit analyst must clearly understand the definition of certain jurisdictions, and under which circumstances federal jurisdictions, or state jurisdiction, or both apply to each particular project scenario. The following section defines these jurisdictions.

5.1 LIMITS OF FEDERAL JURISDICTION

According to 33 CFR 328.4 the limits of federal jurisdiction are defined as:

(a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)

(b) Tidal waters of the United States. The landward limits of jurisdiction in tidal waters:

(1) Extends to the high tide line, or mean high water line,

(2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.

(c) Non-tidal waters of the United States. The limits of jurisdiction in non-tidal waters:

(1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high-water mark, or

(2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high-water mark to the limit of the adjacent wetlands.

(3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

5.2 LIMITS OF TERRITORIAL JURISDICTION

According to Regulation 4860 the jurisdictional definitions are as follow:

High tide line means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm (ref. 33 CFR 328.3 (c)(3)). Ref to NOAA's Tidal Datum

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas ((ref. 33 CFR 328.3 (c)(1)).

Upland means those areas that are above the High Tide Line or Mean High Tide and which are considered outside the USACE jurisdiction.

6.0 OVERVIEW OF APPLICABLE REGULATIONS AND LAWS

This section reviews the applicable regulations and laws within the local and the federal jurisdictions as previously defined.

6.1 PR DEPARTMENT OF NATURAL AND ENVIRONMENTAL RESOURCES

DNER Regulation 4860 (1992, as amended). Regulation for the Use, Surveillance, Conservation and Management of the Territorial Waters, Submerged Lands thereunder and the Maritime Terrestrial Zone.

https://www.drna.pr.gov/wp-content/uploads/2019/03/Reglamento4860_Ingl%C3%A9s.pdf

6.1.1 Disciplines And Professionals That Typically Participate in Coastal Projects Design and Evaluation

Coastal projects involve a wide range of professionals and disciplines to ensure their successful design and evaluation. These projects aim to address the complex challenges associated with coastal areas, including shoreline protection, infrastructure development, environmental preservation, and resilience to climate change. Coastal project design and evaluation are multidisciplinary efforts that require collaboration among these professionals to develop comprehensive and effective solutions. Successful projects often involve extensive planning, data analysis, and community engagement to address the unique challenges of each coastal area. The following are some of the key disciplines and professionals typically involved in coastal project design and evaluation:

Coastal Engineers - Coastal engineers are responsible for designing and evaluating coastal protection structures, beach nourishment projects, and other engineering solutions to mitigate erosion and flooding. They assess wave dynamics, sediment transport, and coastal geology.

Environmental Scientists - Environmental scientists assess the environmental impact of coastal projects and help design measures to protect natural habitats, water quality, and biodiversity. They also evaluate the potential impact on local ecosystems.

Geotechnical Engineers - Geotechnical engineers examine the properties of coastal soils and rock formations to ensure the stability and integrity of coastal structures and foundations. They play a critical role in assessing subsurface conditions.

Civil Engineers - Civil engineers are responsible for the overall planning, design, and management of coastal projects. They oversee construction and infrastructure development while ensuring compliance with relevant standards.

Oceanographers - Play a crucial role in meteorological oceanographic studies, which are often referred to as physical oceanography or ocean-atmosphere interactions. Their role involves studying the interactions between the ocean and the atmosphere, with a focus on understanding the physical processes and phenomena that occur in these domains.

Hydrologists - Hydrologists study water movement, including tidal patterns, currents, and wave behavior, to design effective coastal protection measures. They evaluate water flow and transport dynamics.

Marine Biologists - Marine biologists assess the impact of coastal projects on marine ecosystems and develop strategies to mitigate potential harm to marine life. They provide expertise in preserving biodiversity.

Climate Scientists - Given the impacts of climate change on sea-level rise and extreme weather events, climate scientists may offer insights and data to inform the design and adaptation of coastal projects, ensuring they are resilient to changing environmental conditions.

Architects and Urban Planners - In urban coastal areas, architects and urban planners may contribute to the design of coastal protection projects, ensuring that they integrate with overall urban planning and aesthetics while preserving the coastal environment.

Surveyors - Land and marine surveyors gather precise data on topography, bathymetry, and land-sea interface conditions, which are essential for project planning, design, and evaluation.

Regulatory and Permitting Experts - Regulatory experts navigate the complex web of local, state, and federal regulations, permits, and compliance requirements. They ensure that projects meet all legal and environmental standards and are correctly permitted.

Public Engagement Specialists - Public engagement specialists facilitate community involvement and awareness in coastal projects. They organize public meetings, gather input, and address concerns from stakeholders.

Economists and Cost Estimators - These professionals assess the economic viability of coastal projects, estimate costs, and analyze potential benefits and impacts on local economies, as well as evaluate project funding sources and options.

Project Managers: Project managers oversee all aspects of coastal projects, including planning, design, construction, and ongoing maintenance. They ensure that projects remain on schedule and within budget.

Legal Experts - Legal experts, including environmental lawyers, provide advice and assistance in navigating the legal and regulatory aspects of coastal projects, including permitting, compliance, and potential legal challenges.

GIS and Data Analysts and Scientists: Professionals with expertise in data analysis and scientific research play a crucial role in evaluating the performance of coastal projects, especially in assessing their impact on coastal processes and environmental conditions.

The involvement of these professionals and experts is essential to ensure that coastal projects are evaluated comprehensively, considering their structural integrity, environmental impact, economic feasibility, and their ability

protect coastal areas effectively. This multidisciplinary approach helps identify any necessary adjustments or improvements to enhance the success of the projects.

Ideally, project evaluation by regulatory agencies, such as DNER, should be conducted by the same types of disciplines that were involved coastal developments and coastal engineering projects planning and design. There are alternative approaches that can help ensure a responsible and thorough assessment. These alternatives can help address constraints such as economic constraints and limited human resources. Here are some options:

Interdisciplinary Teams: While DNER may not have the number of experts that plan or design projects, the agency can assemble interdisciplinary teams of experts who can collectively assess the project from various disciplines. This can include environmental scientists, oceanographers, geomorphologists, engineers, economists, and sociologists. DNER would need to actively recruit personnel which currently is not an easy task given the competitive market for professionals and the complexity of obtaining authorizations to recruit personnel from the Office of Management and Budget and the Fiscal Oversight Board.

Peer Review: Independent peer review by experts from relevant fields can provide a valuable evaluation. These experts can assess the project based on established criteria and provide unbiased feedback. Universities and educational institutions can provide some technical peer review and support.

Simulation and Modeling: Computer simulations and modeling can help predict the likely outcomes of the project. These can include modeling how the coastal development may affect the local ecosystem, flooding risks, and more.

Monitoring and Adaptive Management: Implement a robust monitoring and adaptive management plan. This involves continuously monitoring the project's performance and adjusting it as needed. It allows for ongoing evaluation and adjustment based on real-world data.

Consultation with External Experts: If you lack in-house expertise, consider hiring external experts or consultants who can provide independent evaluations. This can help ensure that the evaluation is conducted by professionals with the necessary knowledge and experience. Universities and educational institutions can provide some technical peer review and support.

Multi-Stakeholder Collaboration: Collaborate with NGOs, academic institutions, and other organizations with relevant expertise. This can help fill the knowledge gap and ensure a comprehensive evaluation.

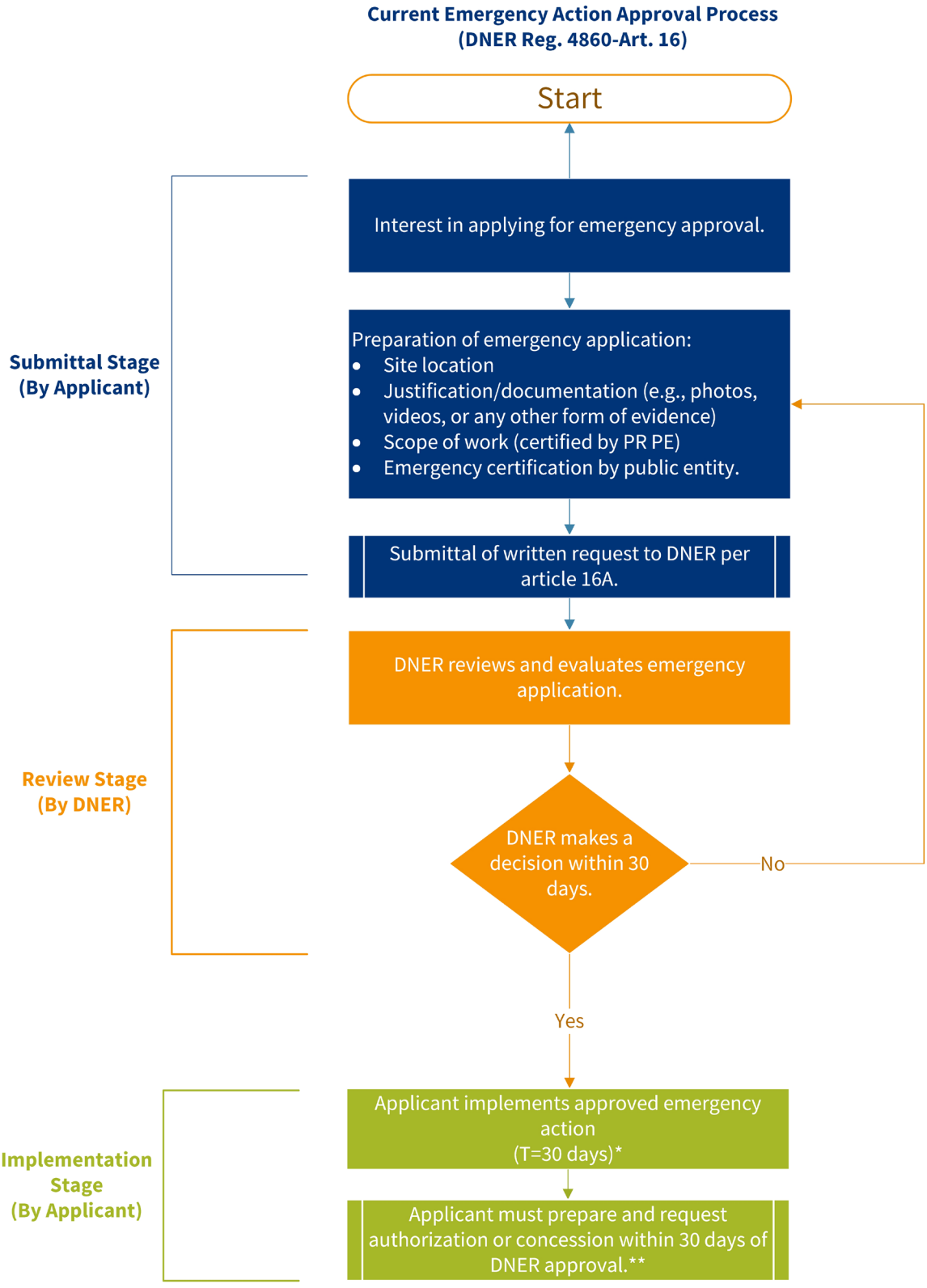
It's important to tailor the evaluation approach to the specific project and its unique characteristics. Combining several of these methods can provide a more comprehensive evaluation, even when resources are limited. Additionally,

transparency, public involvement, and the use of objective criteria are crucial to maintaining accountability and trust in the evaluation process.

6.1.2 Department Of Natural And Environmental Resources (DNER) – Regulation 4860 Concessions, Authorizations And Emergency Approval Process

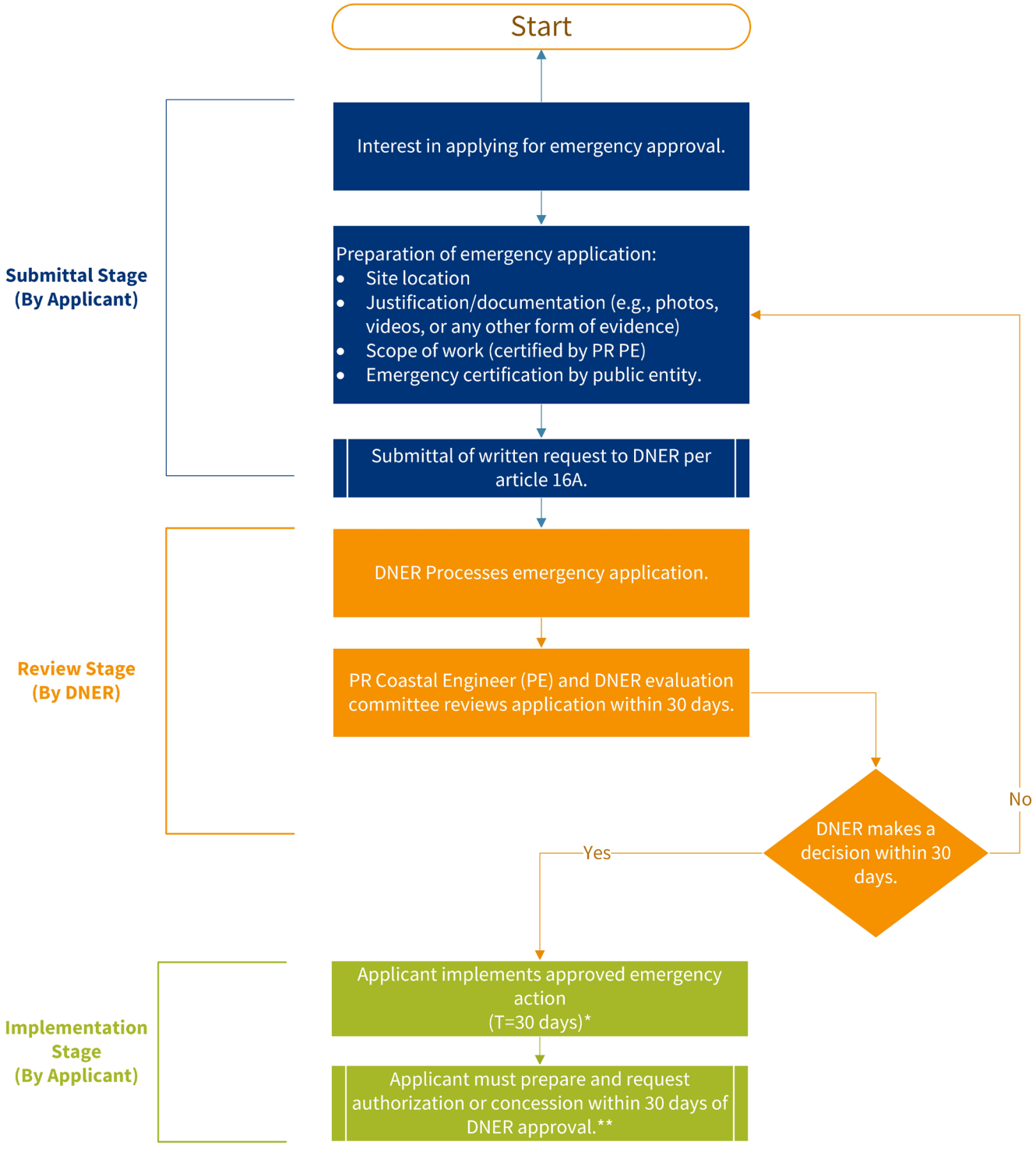
The Governor of Puerto Rico, through the Planning Board, approved the Puerto Rico Coastal Zone Management Program (PRCZMP) in 1978. The development and approval of the Management Program was one of the elements required by the US Secretary of Commerce, acting through the National Oceanic and Atmospheric Administration (NOAA), once Puerto Rico decided to make itself eligible for the benefits conferred under the coastal Zone Management Act {CZMA). The Regulation is part of the Coastal Zone Management Program. It shall be applied and construed to the maximum extent allowed by the law, consistent with the approved Management Program. The Regulation is also adopted pursuant to Act No. 170 of August 12, 1988, as amended, known as the Uniform Administrative Procedure Act[1].

[1] Regulation for the Use, Surveillance, Conservation and Management of the Territorial waters, Submerged Lands Thereunder and the Maritime-Terrestrial Zone (Regulation 4860, 1992)



*DNER secretary may extend implementation period.
**In compliance with Reg. 4860-Art. 5

Proposed Emergency Action Approval Process
(DNER Reg. 4860-Art. 16)



*DNER secretary may extend implementation period.
**In compliance with Reg. 4860-Art. 5

6.2 PUERTO RICO PERMITS MANAGEMENT OFFICE (OFICINA DE GERENCIA Y PERMISOS – OGPE)

OGPe Joint Permit Regulation (versions 2019 and 2010). Reglamento Conjunto para la Evaluación y Expedición de Permisos relacionados al Desarrollo, Uso de Terrenos y Operación de Negocios

https://jp.pr.gov/reglamento-conjunto/

The permitting process in Puerto Rico is governed by local and federal laws and regulations, and it can vary depending on the type of permit required and the specific agency responsible for oversight. However, I can provide a general overview of the permit application and evaluation process in Puerto Rico.

1. Determine the Type of Permit - Identify the specific type of permit you need based on your project or activity. Common permit categories in Puerto Rico include construction permits, environmental permits, land use permits, business licenses, and more.

2. Pre-Application Consultation - It is often advisable to consult with the relevant permitting authority or agency before submitting an application. This can help you understand the requirements and procedures for obtaining the permit.

3. Gather Required Documentation - Collect all the necessary documentation and information required for the permit application. This may include site plans, engineering drawings, environmental impact assessments, financial information, and other supporting materials.

4. Complete the Application - Fill out the permit application form provided by the specific agency responsible for issuing the permit. Ensure that you provide accurate and complete information, as incomplete applications can result in delays.

5. Application Submission - Submit the completed permit application, along with all required documentation, to the appropriate permitting authority or agency. This is typically done in person or electronically, depending on the agency's procedures.

6. Application Review - The permitting agency will review your application to ensure it complies with all applicable laws, regulations, and standards. This may involve technical reviews, environmental assessments, and other evaluations, depending on the nature of the permit.

7. Public Notice and Comment - For certain types of permits, particularly those with environmental or land use implications, there may be a requirement for public notice and comment periods. This allows members of the public to review and comment on the proposed project.

8. Agency Consultation - The permitting agency may consult with other relevant agencies or departments to assess the project's impact and compliance with all relevant regulations.

9. Permit Decision - The permitting authority will decide regarding your permit application. They can approve, deny, or approve with conditions. The timeline for a decision can vary depending on the complexity of the project and the type of permit.

10. Appeals and Remedies - If your permit application is denied, you may have the option to appeal the decision through the appropriate channels or work to address the concerns raised by the permitting authority.

11. Compliance and Monitoring - If your permit is approved, you must comply with the terms and conditions outlined in the permit. You may be subject to inspections and monitoring by the permitting agency to ensure ongoing compliance.

12. Permit Renewal and Reporting - Some permits are subject to renewal, and you may be required to submit regular reports to the permitting agency to demonstrate ongoing compliance with the terms of the permit.

It is important to note that the permitting process in Puerto Rico can be complex and may involve multiple agencies at the local and federal levels, depending on the nature of the project. Consulting with professionals experienced in Puerto Rico's permitting requirements and working closely with the relevant permitting agencies is often essential for a successful application process. Additionally, the specific steps and requirements can vary depending on the type of permit and the location within Puerto Rico.

6.3 JOINT PERMIT APPLICATION PROCESS (USACE, DNER, PRPB)

The Joint Permit Application process was formulated to streamline the regulatory evaluation of coastal projects within federal and territorial jurisdictions. As described in more detail below, projects that take place below the High Tide Line, and which occupy territorial submerged lands will require both USACE and PRDNER permit approval. This permit process is managed by the PRDNER who receives the permit applications and relevant supporting documentation, and who is responsible for distributing the permit application information to the applicable federal and local government agencies.

In those instances where the work is being proposed by a local government agency such as PRDNER, municipalities, or public corporations such as PREPA, PRASA, PRDOT, PRHTA, PRDOH, among others, the agency is exempt from paying the annual cannon or fee associated with the use and occupation of the territorial submerged lands in accordance with Regulation 4860, managed by the PRDNER. Any other project proponent must obtain a concession and pay an annual fee which depends on the space occupied by the project.

6.4 US ARMY CORPS OF ENGINEERS

Rivers and Harbors Appropriation Act of 1899 (March 3, 1899, Ch. 425, Sec. 9, 30 Stat. 1151. 33 U.S.C. § 401 *et seq.)*

The Rivers and Harbors Appropriation Act of 1899 (RHAA) is the first environmental law passed by US federal government. Section 10 of the RHAA regulates any disposal, discharge, excavation, or alteration of the course, condition or capacity of any port, harbor, channel, or other navigable waters of the US. The term “navigable waters of the US” are defined at 33 CFR part 329. Generally, they are those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high-water mark, and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce (ref. 33 CFR 322.2 Definitions, Source: 51 FR 41228). The term mean high water (MHW) is the average of all the high-water heights observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent datum of the National Tidal Datum Epoch (ref. https://tidesandcurrents.noaa.gov/datum_options.html#MHW).

The USACE issues permits depending on the nature and extent of the activities. There are general permits and individual permits. General permits are issued under certain regional or nationwide conditions.

6.4.1 Nationwide Permits

Nationwide permits (NWPs) are issued to authorize certain activities that require Department of the Army permits under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899 and have no more than minimal

individual and cumulative adverse environmental effects. Currently there are 59 NWPs issued and valid for a period of 5 years, which expire March 14, 2026. (ref. 86 FR 2744, correction at 86 FR 27274 and December 27, 2021, 86 FR 73522).

6.4.2 Individual Permit

An individual, or standard permit, is issued when projects have more than minimal individual or cumulative impacts. These projects are evaluated using additional environmental criteria, and involve a more comprehensive public interest review, such as public notices.

The USACE has published the ENG FORM 4345, known as the Application for the Department of the Army Permit. The form is used to provide project specific information which is utilized by federal, state, and local government agencies with jurisdictions over certain aspects of the proposed project to facilitate its evaluation under the applicable regulations and laws.

Appendix A contains an example of a blank ENG FORM 4345 with the instructions to complete the form and include pertinent information which may be useful for the permit analysts, to confirm and ensure that the form is properly completed. This form is used for individual and nationwide permit evaluations in Puerto Rico and the USVI. It can also be found at https://www.drna.pr.gov/wp-content/uploads/2015/04/Solicitud-Conjunta-Joint-Permit.pdf.

6.5 US ENVIRONMENTAL PROTECTION AGENCY

6.5.1 Section 404 of Clean Water Act of 1972

Section 404 of the Clean Water Act of 1972, as amended, requires authorization from the Secretary of the Army, acting through the Corps of Engineers, for the discharge of dredged or fill material into all waters of the United States, including wetlands.

Discharges of fill material generally include, without limitation: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection or reclamation devices such as riprap, groins, seawalls, breakwaters, and revetments; beach nourishment; levees; fill for intake and outfall pipes and subaqueous utility lines; fill associated with the creation of ponds; and any other work involving the discharge of fill or dredged material.

A USACE permit is required whether the work is permanent or temporary. Examples of temporary discharges include dewatering of dredged material prior to final disposal, and temporary fills for access roadways, cofferdams, storage and work areas (ref. 33 USC §1344).

6.6 JOINT PERMIT APPLICATION CONSIDERATIONS

If a project is proposed within federal jurisdictional water as defined in Section 5, a Joint Permit Application must be prepared. The USACE has published Eng Form 4345, which includes instructions, to be completed and supplemented with technical information, if necessary. This form, together with any other relevant supporting information, such as baseline studies, plans, construction sequence, notes, schedules must be filed through the PRDNER in accordance with the Joint Permit Regulation established by and between the USACE, PRPB and the PRDNER, as discussed in Section 6.3.

Typically, there are a series of baseline studies that need to be prepared to serve as the basis of design to ensure that the proposed project meets the minimum technical and environmental requirements to facilitate the evaluation of the project by the local (DNER) and federal (USACE) regulatory agencies.

The extent of the baseline studies depends on the magnitude of the proposed project, but typically these include topographic and/or bathymetric surveys, biological benthic characterization, archeological studies, geotechnical investigations, hydraulic and hydrologic studies, meteorological and oceanographic studies, coastal engineering analysis and design, environmental assessments, or environmental impact statements, etc.

Following is a brief description of the minimum content and objectives of each study:

6.6.1 Topographic and/or Bathymetric Surveys

These studies should cover at a minimum the proposed project area and should be referenced to local horizontal and vertical controls. In PR and the USVI, the coordinate system utilized is a conical projection in accordance with Lambert Zone 5200 PR/VI. The horizontal datum is referenced to the North Atlantic Datum of 1983 (NAD83) (NA2011) Epoch 2010.

The elevations are orthometric and are typically based on the GEOIDE 2012-B referenced to the Puerto Rico Vertical Datum 2002 or Mean Lower Low Water (MLLW) for coastal and navigation projects. The MLLW datum is defined as the average of the lower low water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent datum of the National Tidal Datum Epoch (ref. https://tidesandcurrents.noaa.gov/datum_options.html#MLLW). These surveys must be prepared by appropriately trained and licensed engineers or surveyors.

LiDAR surveys or data are often available that can be used in a larger scale for a given study. However, these data sources must be checked and validated with field data to ensure that there is sufficient correlation between the data sets in terms of vertical and horizontal controls.

Topographic and bathymetric surveys are used to analyze the upland, nearshore and underwater surfaces, and contours, and serve as base plans to enable appropriately design the proposed project. These are also used to calculate excavation, dredging, fill, volumes, and potential impact areas within a given jurisdictional regime (e.g., within the maritime terrestrial zone – per Regulation 4860, or below the High Tide Line or Mean High Water line – per RHAA Section 10 and CWA Section 404).

The permit analyst should ensure that this information is included in the permit application. The analyst should be able to read and clearly understand from a given set of plans, where the project lays relative to these jurisdictional regimes and confirm the potential impacts are reduced within the technical parameters and requirements of the proposed project.

6.6.2 Biological Benthic Characterization

These studies should cover not only the area within the proposed project limits, but they should extend outside the area to characterize nearby resources which may exist beyond the project footprint, and which may become impacted by the project.

NOAA (NATIONAL OCEANIC AND ATMOSPHERIC) and the PRDNER have desktop databases available to the public, which may be used to conduct a preliminary characterization of the area. However, site specific data collection, observation and documentation must be conducted by qualified marine scientists/biologists. A biological benthic characterization is a comprehensive assessment of the organisms and communities inhabiting the bottom of aquatic ecosystems, such as lakes, rivers, and oceans. It involves the systematic study of the benthos, which encompasses a wide range of organisms including macroinvertebrates, microorganisms, and plants. This characterization aims to evaluate the composition,

diversity, abundance, and distribution of benthic species, serving as a vital tool for environmental monitoring and ecological research. By analyzing the benthic community structure, researchers can gain insights into the health and ecological integrity of aquatic ecosystems, as well as the impacts of various stressors like pollution, habitat alteration, and climate change on these vital underwater habitats.

6.6.1 Archeological Studies

To comply with the archeological and cultural preservation laws and regulations, a consultation process needs to be initiated with the State Historical Preservation Office (SHPO) and the Council for the Protection of Terrestrial Archeological Heritage of Puerto Rico (Council), under the umbrella of the Institute of Puertorrican Culture (IPRC). Both SHPO and the Council require Phase IA and Phase IB studies to determine the presence or absence of archeological or cultural artifacts in areas of potential effect in projects involving subsurface disturbance and/or excavations.

Phase IA is a desktop study of archives, literature, photographs, and cartography. In addition, a site visit is typically conducted to complement the desktop research. Phase IA helps anticipate and characterize the possible impacts to archaeological sites within project's area. Phase IB is a field investigation that consists of taking surface and subsurface soil samples to confirm the presence or absence of archaeological sites revealed in the Phase IA study.

Phase IA and Phase IB are typically conducted in open areas to comply with local and federal requirements. A summary of the archival review and field data, the data analysis and all recommendations are included in the final Phase IA and Phase IB reports. When applicable, this information is included as part of the supplemental background information for the permit process. These archeological studies can also be part of the Environmental Assessment or Environmental Impact Statement prepared for the project.

6.6.2 Geotechnical Investigation

Whenever there are foundations, embankments, bearing or guide piles, etc. within the proposed project, the sub-surface soil conditions must be characterized and documented. The extent and type of the geotechnical investigation depends on the nature of the proposed project. The project proponent decides what type of studies are necessary to develop a conceptual design and provide the proposing engineer with the minimal technical requirements to implement the project in a structurally safe and functional matter.

It is common that the permit analyst or reviewing agency does not have the technical capabilities to review and analyze these geotechnical or subsurface soil investigation, and therefore must rely in the professional opinion and recommendations of the licensed design engineer developing the proposed project.

Typically, if geotechnical investigations are required and conducted to develop the conceptual design and alternatives, this information is included as part of the permit supplemental information for review of the local and federal agencies. However, desktop analyses and other available historical information can be used at the conceptual level, which can be effectively utilized for permitting phase.

6.6.3 Hydraulic and Hydrologic Studies

H&H studies are typically required for riverine embankment or shoreline stabilization projects. For complex projects, the project proponents may be required to conduct numerical modeling to simulate the hydrologic and hydraulic conditions affecting the project. Various scenarios are formulated and analyzed considering different environmental conditions resulting from rainfall, surface water runoff, river, and channel flows, etc. These analyses objectives include erosion control, flow and hydraulic dissipation features, embankment stabilization, flood control, scour protection around hard

structures and watershed management. H&H studies also address potential effects of turbulent flows which may increase suspended sediments and affect water quality in general.

These studies can be highly technical and permit analysts may require a subject matter expert to review and analyze these studies to ensure that the proposed project meets industry accepted design standards and guidelines.

In the past, the PRDNER has had the technical support of H&H consultants to review proposed projects and permit applications and to ensure that the project is technically sound.

6.6.1 Meteorological and Oceanographic Study

Met Ocean Studies are required when a proposed project is in an area subjected to direct or indirect wind, currents and/or wave action. These can vary from estuarine, exposed coastal areas, harbors, ports, marinas, and open waters. The objectives if these studies are to characterize and define environmental parameters and conditions to establish design criteria.

The permit analysts should be able to understand with a certain degree of confidence about the available desktop Meteorological and Oceanographic information (ref.

The Met Ocean Studies should include at a minimum the following information:

Wind and wave statistical information – historical wave heights and direction, wave periods and direction and wind speed and direction available through the Puerto Rico Wave Climate Atlas. The Puerto Rico Wave Climate Atlas was funded by the Puerto Rico Department of Natural Resources through the Puerto Rico Coastal Zone Management Program and supplemental funding provided by The Puerto Rico Science, Technology and Research Trust. Administrative, financial, and technical support was also provided by UPR Sea Grant and CARICOOS.

The Puerto Rico Wave Climate Atlas is a tool to analyze seasonal, interannual and long-term changes in Puerto Rico's wave climate over the 40-year period from 1979-2019 using high-resolution numerical simulations. CARICOOS buoy data has validated these simulations to ensure the atlas accurately depicts Puerto Rico's wind and wave climate. The purpose of this atlas is to be used as a tool for scientists, planners, engineers, and other professionals working in projects within the PR's coastal zone.

Typically, these studies are prepared as part of the fundamental baseline studies to establish and define design parameters and criteria such as significant wave heights and direction, wave periods and direction, wind speed and direction, water levels, wave runup, and other parameters depending on the proposed project.

These studies are highly technical and permit analysts are not necessarily prepared to evaluate these studies. Therefore, it is recommended that the PRDNER contracts an outside physical oceanographer or coastal engineer to analyze these studies on a project-by-project basis.

6.6.1 Coastal Engineering Analysis and Design

A critical step in the evaluation of these environmentally sensitive, technically challenging, and sometimes controversial projects is the evaluation of the proposed remedial action presented by these projects. Depending on the project location, the extent and nature of the proposed action or intervention, and the elements included within, the project analysts may need to seek technical support to facilitate the evaluation and a decision-making process.

The coastal engineering analysis and design process needs to follow industry standards and considerations for these projects to be effective and successful. There are a series of engineering design manuals published by the USACE and other federal and NGOs which contain engineering analysis and design methodologies for seawalls, revetments, breakwaters,

artificial reefs, beach nourishment, ecological restoration interventions, ports and harbors, marinas, dredging and other related navigation projects. There are also a number of numerical modeling tools which emulate oceanographic conditions and provide engineering analysis and design guidance for many of these structures and infrastructures. These are also highly specialized topics that require the technical review of subject matter experts which are not readily available within local and state agencies.

The technical and environmental analyses of these projects is often very challenging for project analysts, especially when considering the public perception of the environmental impacts of some coastal development projects throughout Puerto Rico. It is for this precise reason, that it is critically important to have a vetted coastal or ocean engineer or a physical oceanographer available to technically review the proposed projects within the federal and territorial jurisdictional regimes.

One of the main challenges that local and state agencies are facing is the economic and financial crisis which limits the ability to provide sufficient technical review support to these highly sensitive and sometimes controversial projects.

6.6.1 Environmental Studies

6.6.1.1 Environmental Assessment

An Environmental Assessment (EA) is a systematic and comprehensive evaluation of the potential environmental impacts of a proposed federal project or action, typically conducted by a federal agency. The EA is a critical step in the NEPA and Puerto Rico Environmental Policy processes, designed to determine whether the proposed project would have significant environmental effects, and if so, whether a more in-depth Environmental Impact Statement (EIS) is required. It involves the collection and analysis of data regarding the project's potential impacts on areas such as air and water quality, ecosystems, wildlife, and cultural resources. Public input and agency coordination are often integral components of the EA process, allowing for public participation and input into the decision-making process. The EA serves as a key tool for informed decision-making, helping federal agencies balance project objectives with environmental protection and public welfare.

6.6.1.2 Environmental Impact Statement (NEPA or NEPA like)

The Environmental Impact Statement (EIS) is a comprehensive and detailed document that assesses the potential environmental effects of a proposed federal project, policy, or action. It serves as a critical component of NEPA's and Puerto Rico's Environmental Policy decision-making processes, providing in-depth analysis and disclosure of the anticipated environmental consequences, including social, economic, and ecological impacts, along with alternatives and mitigation measures. The EIS is intended to inform the public, federal agencies, and decision-makers about the environmental implications of the project and is often subject to public review and comment. Its preparation is mandated when it is determined through a prior Environmental Assessment (EA) that the proposed action may have significant environmental effects, ensuring that environmental factors are considered when making decisions about the project's approval and implementation.

6.6.2 Pre-Consultation Resources

The proposing party has the ability to request a pre-consultation meeting through the Inter-agency meetings schedules managed by the USACE on a monthly basis, or independently meet with PRDNER permit analysts in order to present the project and discuss any element of the project which may not be clearly understood by the permit analyst.

The Inter-agency meeting is a good resource to conduct this pre-consultation for the project proponent to present details about the project which other agencies may consider important during their evaluation.

It is a clear fact and reality that the local regulatory and resource agencies to which these permit applications are being submitted, do not have the technical expertise nor human resources to conduct the review of the multiple and numerous permit applications submitted to DNER through the JPA process.

7.0 REGULATORY FRAMEWORK AND CASE STUDIES – COMPARATIVE ANALYSIS

Coastal engineering projects in Puerto Rico are subject to a combination of federal, state, and local regulations, as well as specific environmental and coastal protection requirements. Following are some of the key regulations and agencies that may be relevant to coastal engineering projects in Puerto Rico:

7.1 LEGAL AND INSTITUTIONAL FRAMEWORK – LAWS AND REGULATIONS REVIEW

Per indicated in previous sections, coastal protection and engineering projects in Puerto Rico involving activities in navigable waters, wetlands or floodplains may require permits under the Clean Water Act and the Rivers and Harbors Act. The US Army Corps of Engineers (USACE) district office in Jacksonville and the Antilles division in Puerto Rico are responsible for evaluating and issuing such permits.

Similarly, the Puerto Rico Coastal Zone Management Program (PRCZMP) administered by the Department of Natural and Environmental Resources (DNER) and the Puerto Rico Planning Board oversee the Federal Consistency Review per established by the US Coastal Zone Management Ac (1972, as amended). This program is designed to protect and manage the coastal zone while promoting sustainable development. The PRCZMP is a quasi-regulatory networked program applicable to federal activities. PRCZMP means of exerting control over land use and water resources include land use regulations, permitting requirements, and environmental protection measures.

The former Environmental Quality Board has been merged under the DNER. DNER is now the primary agency responsible for implementing the environmental policy in Puerto Rico. Coastal engineering and coastal protection, restoration and enhancement projects require permits related to water quality, air quality, and environmental impact assessments. DNER and the Office for Permits Management (OGPe) maintain an administrative agreement to ensure environmental compliance of activities requiring permits.

7.1.1 Constitution of the Commonwealth of Puerto Rico

The Constitution of Puerto Rico, adopted in 1952, serves as the fundamental legal framework for the Commonwealth of Puerto Rico, a territory of the United States. It outlines the island's government structure, delineates the division of powers between its branches, and defines the rights and responsibilities of its citizens. The constitution establishes Puerto Rico's political status as a self-governing entity with a republican form of government, subject to the sovereignty of the United States. It protects individual rights, enshrines principles of democracy, and provides a framework for its legal system.

Section 19 of Article VI of the Constitution of Puerto Rico provides that the public policy of the Commonwealth of Puerto Rico shall be the most effective manner of conservation of its natural resources, as well the preservation and maintenance of buildings and places of historic or artistic value.

7.1.2 Puerto Rico Department of Natural and Environmental Resources Framework Act (Law 23, 1972, as amended)

The Puerto Rico Department of Natural and Environmental Resources Framework Act is a legislative statute that establishes the legal framework and operational guidelines for the Department of Natural and Environmental Resources (DNER) in Puerto Rico. This Act outlines the DNER's mission, responsibilities, and organizational structure, detailing its roles in managing and conserving the island's natural resources, safeguarding the environment, and regulating activities that impact Puerto Rico's ecological and cultural heritage. It provides the authority for the DNER to enforce environmental regulations, promote sustainable practices, and engage in conservation efforts, ensuring the protection of the island's diverse ecosystems, wildlife, and cultural assets for current and future generations.

Article 5 (h) establishes DNER's mandate …To exercise surveillance and see to the conservation of territorial waters, submerged lands thereunder and the maritime-terrestrial zone, to grant franchises, permits and licenses of public nature for its use and exploitation and to establish through regulations the fees to be paid by same. To such effects he shall be empowered to exercise such powers and faculties that may be delegated by any agency or instrumentality of the federal government under any act of the Congress of the United States.

7.1.3 National Environmental Policy Act (NEPA)

Projects with federal involvement or funding are subject to NEPA, which requires the preparation of environmental impact assessments or statements to evaluate the potential environmental impacts of the project.

7.1.4 Endangered Species Act (ESA)

If your project area is habitat for endangered or threatened species, you may need to consult with the U.S. Fish and Wildlife Service to ensure compliance with the ESA.

7.1.5 Marine Resources Management Area Regulations

Coastal projects may also be subject to regulations regarding marine resources management and the protection of coral reefs and essential fish habitats, among others. These regulations are enforced by DNER and NOAA National Marine Fisheries Services.

7.1.6 Stormwater Management Regulations

Projects that involve construction or significant land disturbance may need to comply with stormwater management regulations to prevent erosion and control runoff. These regulations are typically enforced by local authorities.

7.1.7 Local Land Use and Building Regulations and Codes

Local municipalities in Puerto Rico have their own building and zoning codes that apply to construction projects, including coastal engineering projects. It's essential to comply with local regulations and obtain the necessary permits from the local municipality where your project is located.

7.1.8 Maritime Regulations

Coastal engineering projects that impact navigation and maritime safety may be subject to regulations and permitting requirements from the U.S. Coast Guard.

DNER Regulation 4860 (1992, as amended) is the single most important instrument available to DNER for the administration, conservation, and surveillance of the maritime-terrestrial public domain goods. The use of the maritime-terrestrial public domain is public and free for common uses that are in harmony with its nature, such as walking, staying, swimming, and similar activities that do not require any type of construction or installations and that are carried out in accordance with the laws, regulations, or current norms in the Commonwealth. The uses that have special circumstances of intensity, danger, or profitability, as well as those that require the execution of works and installations, can only be authorized or granted based on the provisions of this Regulation and the general or specific applicable rules.

The Coastal Engineering Handbook series provides guidance to regulatory agencies, professionals, and permit applicants regarding coastal projects. Part III of the series focuses on opportunities to strengthen and streamline coastal projects evaluation process with special emphasis on Regulation 4860, supra.

8.0 CASE STUDIES REVIEW – A COMPARATIVE ANALYSIS

8.1 USACE JURISDICTIONAL DETERMINATIONS

Jurisdictional Determination (JD) by the United States Army Corps of Engineers (USACE) is a crucial regulatory process used to determine whether a particular body of water or wetland falls under the jurisdiction of the Clean Water Act (CWA). The CWA is a federal law that regulates the discharge of pollutants into navigable waters of the United States, and it is essential for protecting and preserving water resources and wetlands. Jurisdictional Determinations help identify which waters are subject to the CWA's permitting requirements, like Section 404 permits for dredge and fill activities. The "Waters of the United States" (WOTUS) rule is a regulatory framework established by the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) to clarify which waters are subject to federal jurisdiction under the Clean Water Act .

The Clean Water Act (1972, as amended) defines "waters of the United States" as all waters that are subject to the regulatory authority of the United States under the Act. This definition includes:

- Traditional navigable waters, which are waters that are used for interstate or foreign commerce.
- Interstate waters, which are waters that cross state lines.
- Territorial seas, which are waters extending three nautical miles from the baseline of the coast.
- Impoundments of the above waters.
- Tributaries of the above waters.
- Adjacent wetlands, ponds, lakes, and other waters that are connected to or have a significant nexus to the above waters.

For the most up-to-date information on the definition of jurisdictional waters under the Clean Water Act, it is recommended to consult the Environmental Protection Agency (EPA) or the U.S. Army Corps of Engineers (USACE) websites or contacting regulatory authorities responsible for implementing the CWA.

8.2 OVERVIEW OF THE USACE JURISDICTIONAL DETERMINATION PROCESS

Request for JD: The process typically begins when a landowner, developer, or other interested party submits a request for a Jurisdictional Determination to the local USACE district office. This request may come with an

application for a permit, or it can be a standalone request to clarify whether a specific water body or wetland is under federal jurisdiction.

8.2.1 Preliminary Review

Upon receiving the request, the USACE conducts a preliminary review to determine whether they should assert jurisdiction. This involves gathering information about the site, its location, and the features in question. The determination is made based on established guidelines, regulatory definitions, and case law.

8.2.2 On-Site Inspection

In many cases, an on-site inspection is conducted by USACE personnel to verify the presence and extent of wetlands or other waters on the property. This step is particularly important for complex or contentious cases.

8.2.3 Jurisdictional Determination

After the review and on-site inspection, the USACE issues a Jurisdictional Determination document. There are two possible outcomes:

a. Waters of the United States (Jurisdictional): If the USACE determines that the water body or wetland is jurisdictional, it is considered a "water of the United States" under the Clean Water Act. Activities affecting such waters may require a Section 404 permit or other CWA permits.

b. Not Waters of the United States (Non-Jurisdictional): If the USACE determines that the water body or wetland is not jurisdictional, it means that it is not subject to CWA regulation, and no federal permit is required.

8.2.4 Appeal or Dispute

If there is a dispute or disagreement with the Jurisdictional Determination, landowners or project proponents can request reconsideration or appeal the decision through a formal process.

8.2.5 Legal Implications

The Jurisdictional Determination has significant legal implications. If an activity involves a water body or wetland that is determined to be under federal jurisdiction, the applicant may need to obtain the required permits and comply with federal regulations, including the Section 404 permit for dredge and fill activities. Failing to do so can result in legal penalties.

It is important to note that the process can be complex, and regulatory interpretations may vary. Consulting with legal experts and environmental consultants who specialize in CWA compliance can be essential to navigate the process effectively and ensure compliance with federal regulations. Additionally, the specifics of the JD process may change over time due to regulatory updates and legal developments, so it's important to consult the most current guidelines and regulations from the USACE and the Environmental Protection Agency (EPA).

9.0 PUERTO RICO PLANNING BOARD -LAND USE AN ZONING REGULATIONS

The Puerto Rico Planning Board (PRPB) plays a vital role in land use planning, zoning, and development in Puerto Rico. Its land use consultation process is crucial for regulating and guiding land use decisions on the island. Here's an overview of the Puerto Rico Planning Board's land use consultation process:

9.1 LAND USE REGULATIONS AND FRAMEWORK

The land use consultation process in Puerto Rico is governed by various laws, regulations, and policies. The primary legal framework includes the "Reglamento Conjunto de Uso de Terrenos y Control de Desarrollo" (Joint Regulation of Land Use and Development Control). These regulations provide the legal basis for land use planning and zoning on the island.

9.2 PLANNING AND ZONING JURISDICTIONS

Puerto Rico is divided into various planning and zoning jurisdictions, each with its own zoning ordinances, land use plans, and regulatory frameworks. These local jurisdictions may include municipalities, planning districts, or other administrative units.

9.3 LAND USE APPLICATIONS

Individuals or entities seeking to develop or change the use of land must submit land use applications to the relevant local planning and zoning authority. The specific requirements for these applications may vary depending on the jurisdiction, but they often include details about the proposed development, site plans, environmental assessments, and other relevant information.

9.4 REVIEW AND EVALUATION

The local planning and zoning authority, often working in conjunction with the Puerto Rico Planning Board, reviews the land use applications. They assess the proposed development's compliance with the zoning ordinances, land use plans, and other regulations. This process may also consider the potential impacts on the environment, infrastructure, and community.

9.5 PUBLIC HEARINGS AND INPUT

In many cases, public hearings are held to gather input from the community and stakeholders. These hearings provide an opportunity for residents and interested parties to express their opinions, concerns, and support for the proposed development.

9.6 RECOMMENDATIONS AND DECISION

Based on the review and public input, the local planning and zoning authority makes recommendations and decisions regarding the land use application. This may involve granting or denying permits, requiring modifications, or imposing conditions to ensure compliance with land use regulations.

9.7 APPEAL PROCESS

If an applicant or a concerned party is dissatisfied with a decision, there is often an appeal process outlined in the local regulations. The appeal may go to the local zoning board or, in some cases, to the Puerto Rico Planning Board.

9.8 INTEGRATION WITH THE COMPREHENSIVE PLAN

Land use decisions should align with the Comprehensive Plan for the jurisdiction. The Comprehensive Plan sets the long-term vision for land use, infrastructure, and economic development in the area.

9.9 ENVIRONMENTAL IMPACT ASSESSMENT

Major developments or projects with potential environmental impacts may require an Environmental Impact Statement (EIS) or an Environmental Impact Assessment (EIA). These assessments are submitted to relevant agencies, such as the Environmental Quality Board (Junta de Calidad Ambiental), for review and approval.

9.10 BUILDING PERMITS

Once land use approvals are obtained; applicants typically need to secure building permits to commence construction. These permits are issued by the local building department, which ensures compliance with construction codes and safety regulations.

It's important to note that the specific procedures and regulations can vary from one municipality to another within Puerto Rico. The role and involvement of the Puerto Rico Planning Board may also differ based on local ordinances and the nature of the development. Therefore, applicants and developers should closely follow the regulations and procedures of the specific jurisdiction where their project is located.

10.0 FEDERAL CONSISTENCY PROCESS – COASTAL ZONE MANAGEMENT ACT (1972) AND PUERTO RICO COASTAL ZONE MANAGEMENT PROGRAM (1978)

The Federal Consistency Coastal Zone Management (CZM) process in the United States is designed to ensure that federal activities and projects occurring in or affecting a state's coastal zone are consistent with the state's approved Coastal Zone Management Program. The Coastal Zone Management Program is a voluntary initiative under the Coastal Zone Management Act (CZMA) that allows states to protect and manage their coastal areas in partnership with the federal government. The Federal Consistency process involves several key steps:

10.1 DETERMINATION OF FEDERAL ACTIVITY OR PROJECT

The process begins with the identification of a federal activity or project that is proposed to occur within or affect a state's coastal zone. Federal activities can include things like dredging, infrastructure development, energy projects, and permits issued by federal agencies.

10.2 PUERTO RICO COASTAL ZONE MANAGEMENT PROGRAM REVIEW

The Puerto Rico Coastal Zone Management Program defines the policies and regulations for coastal development, must be reviewed to determine whether the proposed federal activity is consistent with the program. Each state's program is unique and can vary in its goals, policies, and management requirements.

10.3 NOTICE OF FEDERAL ACTIVITY

The federal agency proposing the activity is required to provide notice to the Puerto Rico Coastal Zone Management Program agency (Planning Board) about the proposed project. This notice typically includes details of the project's scope, location, and potential environmental impacts.

10.4 PUERTO RICO PLANNING BOARD REVIEW

The state agency responsible for coastal zone management reviews the notice and assesses whether the federal activity is consistent with the state's program. This review may involve an analysis of how the project aligns with the state's coastal policies, environmental standards, and other criteria.

10.5 STATE AGENCY DECISION

After the review, the state agency issues a decision. If the federal activity is consistent with the state's program, the state agency will provide a concurrence. If it is not consistent, the state agency will issue a non-concurrence and may suggest modifications to the project to make it consistent.

10.6 FEDERAL AGENCY RESPONSE

Federal agencies must consider the state agency's determination. If the state agency concurs with the federal project's consistency, the federal agency can proceed with the project. If there is a non-concurrence, the federal agency may be required to address the concerns raised by the state agency, make project modifications, or withdraw the project.

10.7 NEGOTIATION AND RESOLUTION

If there is a non-concurrence, the state and federal agencies may engage in negotiations to resolve any issues and attempt to reach an agreement that results in consistency with the state's program.

10.8 CONFLICT RESOLUTION

If disagreements persist and cannot be resolved through negotiation, the issue may be escalated to higher levels of government or even legal action.

10.9 FINAL DECISION

Once any disputes are resolved, the federal agency makes a final decision regarding the project's consistency and, if applicable, proceeds with the project in accordance with the state's requirements.

10.10 MONITORING AND COMPLIANCE

Both state and federal agencies continue to monitor the project to ensure that it remains consistent with the state's Coastal Zone Management Program throughout its implementation.The Federal Consistency process is a collaborative effort between state and federal agencies to protect the coastal environment, maintain the integrity of the Coastal Zone Management Program, and promote responsible coastal development. It aims to balance the need for development with

the preservation of valuable coastal resources and ecosystems. The specific details and timelines of the process may vary from state to state, and federal agencies must work closely with state authorities to navigate this regulatory framework.

11.0 FINAL RECOMMENDATION

Throughout the preparation of this document, a meticulous examination was conducted to assess the strengths, weaknesses, and potential threats associated with the coastal project's evaluation process in Puerto Rico. More importantly, this document identifies opportunities to streamline this process while rigorously adhering to DNER's regulatory framework.

It is evident that the number of coastal and environmentally sensitive projects will increase given the recovery funds appropriated by Federal agencies assigned to Puerto Rico. Project evaluation has been severely affected and can be further disrupted, resulting in additional challenges for the agency and Puerto Rico. DNER needs to proactively expand its analytical capabilities and resources in anticipation of the surge of coastal projects.

In conclusion, the lack of human resources and financial constraints severely impact permit, concession, and authorization evaluations. Timely permit, concession and authorizations evaluation and issuance demands a delicate balance between efficiency and compliance. A strategic approach that emphasizes cross-functional collaboration, streamlined processes, and judicious allocation of resources is essential. By fostering a culture of adaptability and continuous improvement, DNER can not only meet their legal obligations but also promote innovation and responsiveness in the evaluation process, ultimately achieving a harmonious integration of compliance and efficiency.

APPENDIX A – ENG FORM 4345

Instructions for Preparing a
Department of the Army Permit Application

Blocks 1 through 4. To be completed by Corps of Engineers.

Block 5. Applicant's Name. Enter the name and the E-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the application, please attach a sheet with the necessary information marked Block 5.

Block 6. Address of Applicant. Please provide the full address of the party or parties responsible for the application. If more space is needed, attach an extra sheet of paper marked Block 6.

Block 7. Applicant Telephone Number(s). Please provide the number where you can usually be reached during normal business hours.

Blocks 8 through 11. To be completed, if you choose to have an agent.

Block 8. Authorized Agent's Name and Title. Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, or any other person or organization. Note: An agent is not required.

Blocks 9 and 10. Agent's Address and Telephone Number. Please provide the complete mailing address of the agent, along with the telephone number where he / she can be reached during normal business hours.

Block 11. Statement of Authorization. To be completed by applicant, if an agent is to be employed.

Block 12. Proposed Project Name or Title. Please provide name identifying the proposed project, e.g., Landmark Plaza, Burned Hills Subdivision, or Edsall Commercial Center.

Block 13. Name of Waterbody. Please provide the name of any stream, lake, marsh, or other waterway to be directly impacted by the activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

Block 14. Proposed Project Street Address. If the proposed project is located at a site having a street address (not a box number), please enter it here.

Block 15. Location of Proposed Project. Enter the latitude and longitude of where the proposed project is located. If more space is required, please attach a sheet with the necessary information marked Block 15.

Block 16. Other Location Descriptions. If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality that the site is located in.

Block 17. Directions to the Site. Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide description of the proposed project location, such as lot numbers, tract numbers, or you may choose to locate the proposed project site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed project site if known

Block 18. Nature of Activity. Describe the overall activity or project. Give appropriate dimensions of structures such as wing walls, dikes (identify the materials to be used in construction, as well as the methods by which the work is to be done), or excavations (length, width, and height). Indicate whether discharge of dredged or fill material is involved. Also, identify any structure to be constructed on a fill, piles, or float-supported platforms.

The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 18.

Block 19. Proposed Project Purpose. Describe the purpose and need for the proposed project. What will it be used for and why? Also include a brief description of any related activities to be developed as the result of the proposed project. Give the approximate dates you plan to both begin and complete all work.

Block 20. Reasons for Discharge. If the activity involves the discharge of dredged and/or fill material into a wetland or other waterbody, including the temporary placement of material, explain the specific purpose of the placement of the material (such as erosion control).

Block 21. Types of Material Being Discharged and the Amount of Each Type in Cubic Yards. Describe the material to be discharged and amount of each material to be discharged within Corps jurisdiction. Please be sure this description will agree with your illustrations. Discharge material includes: rock, sand, clay, concrete, etc.

Block 22. Surface Areas of Wetlands or Other Waters Filled. Describe the area to be filled at each location. Specifically identify the surface areas, or part thereof, to be filled. Also include the means by which the discharge is to be done (backhoe, dragline, etc.). If dredged material is to be discharged on an upland site, identify the site and the steps to be taken (if necessary) to prevent runoff from the dredged material back into a waterbody. If more space is needed, attach an extra sheet of paper marked Block 22.

Block 23. Description of Avoidance, Minimization, and Compensation. Provide a brief explanation describing how impacts to waters of the United States are being avoided and minimized on the project site. Also provide a brief description of how impacts to waters of the United States will be compensated for, or a brief statement explaining why compensatory mitigation should not be required for those impacts.

Block 24. Is Any Portion of the Work Already Complete? Provide any background on any part of the proposed project already completed. Describe the area already developed, structures completed, any dredged or fill material already discharged, the type of material, volume in cubic yards, acres filled, if a wetland or other waterbody (in acres or square feet). If the work was done under an existing Corps permit, identity the authorization, if possible.

Block 25. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site. List complete names and full mailing addresses of the adjacent property owners (public and private) lessees, etc., whose property adjoins the waterbody or aquatic site where the work is being proposed so that they may be notified of the proposed activity (usually by public notice). If more space is needed, attach an extra sheet of paper marked Block 24.

Information regarding adjacent landowners is usually available through the office of the tax assessor in the county or counties where the project is to be developed.

Block 26. Information about Approvals or Denials by Other Agencies. You may need the approval of other federal, state, or local agencies for your project. Identify any applications you have submitted and the status, if any (approved or denied) of each application. You need not have obtained all other permits before applying for a Corps permit.

Block 27. Signature of Applicant or Agent. The application must be signed by the owner or other authorized party (agent). This signature shall be an affirmation that the party applying for the permit possesses the requisite property rights to undertake the activity applied for (including compliance with special conditions, mitigation, etc.).

DRAWINGS AND ILLUSTRATIONS

General Information.

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross-Section Map. Identify each illustration with a figure or attachment number.

Please submit one original, or good quality copy, of all drawings on 8½ x11 inch plain white paper (electronic media may be substituted). Use the fewest number of sheets necessary for your drawings or illustrations.

Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross-section). **While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.**

Print Form | Save As

U.S. Army Corps of Engineers (USACE)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

For use of this form, see 33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved - OMB No. 0710-0003 Expires: 08-31-2023

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Middle - Last -	First - Middle - Last -
Company -	Company -
E-mail Address -	E-mail Address -
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address-	Address-
City - State - Zip - Country -	City - State - Zip - Country -
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business c. Fax	a. Residence b. Business c. Fax

STATEMENT OF AUTHORIZATION

11. I hereby authorize, to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
	Address
15. LOCATION OF PROJECT	City - State- Zip-
Latitude: °N Longitude: °W	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID Municipality

Section - Township - Range -

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17. DIRECTIONS TO THE SITE

18. Nature of Activity (Description of project, include all features)

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

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24. Is Any Portion of the Work Already Complete? Yes No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

a. Address-

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

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