



WORK ORDER NO. E583
UNDER GLO CONTRACT NO. 22-004-022

Pursuant to **GLO CONTRACT NO. 22-004-022** ("Contract") between the **GENERAL LAND OFFICE** ("the GLO") and **MOTT MACDONALD, LLC** ("Provider"), each a "Party" and collectively "the Parties," Provider is authorized to perform the services described herein, subject to the terms of this Work Order No. **E583** ("Work Order").

I. PROJECT DESCRIPTION

- a) Provider shall perform, or cause to be performed, engineering services for the City of Port Lavaca Harbor of Refuge project ("the Project"), as described in Provider's Proposal attached hereto as **Attachment A**.
- b) Provider must perform all work in accordance with the Contract and all its Attachments; the Solicitation; the Solicitation Response; and this Work Order and all its Attachments.

II. INSURANCE

- a) Prior to commencing work or incurring any charges under this Work Order, Provider must submit directly to the GLO Contract Management Division, certificates of insurance in the amounts required for the Project and in strict conformance with the requirements of **Attachment B** of this Work Order, Required Insurance and Form.
- b) Provider must submit certificates of insurance to the GLO Contract Management Division at the email address: insurance@glo.texas.gov. Submission by any other means may delay the Project.
- c) The GLO shall notify Provider of deficient certificates and specify a period of time for Provider to correct deficiencies. If Provider does not obtain acceptable insurance within the time specified, the GLO may, in its sole discretion, declare this Work Order void.

III. TASKS, DELIVERABLES, AND DELIVERABLE DUE DATES

Provider must perform all tasks and submit all deliverables in strict conformance with **Attachment A**. Provider must submit all deliverables in accordance with the due dates/schedules established in **Attachment A**, or as directed by the GLO if no due date or schedule is established in **Attachment A** for a given deliverable.

IV. COMPENSATION AND REIMBURSEMENT

- a) The total compensation due to Provider for services performed and costs incurred pursuant to this Work Order is not to exceed **\$687,866.00**.
- b) The GLO will not reimburse Provider for travel expenses of any kind without prior written GLO approval. The GLO will only reimburse travel expenses directly attributable to Provider's performance of this Work Order at the rates established or adopted by the Comptroller of the State of Texas, as outlined in the Travel Regulations.

- c) Subject to the maximum Work Order amount authorized and upon specific, prior, written approval by the GLO, lodging, travel, and other incidental direct expenses may be reimbursed under this Work Order for professional or technical personnel who are working away from the cities in which they are permanently assigned and conducting business specifically authorized in the scope of services in the applicable Work Order.
- d) The limits for reimbursements are the rates established or adopted by the Comptroller, as outlined in the Travel Regulations. **Provider understands and acknowledges that any travel-expense reimbursement by the GLO is not a per diem. The GLO will only reimburse actual, allowable expenses in accordance with the Travel Regulations. Provider must submit itemized receipts to support any request for travel-expense reimbursement.**

V. SUBMISSION OF INVOICES

- a) Provider must submit invoices to the GLO in accordance with this Work Order and Provider's Proposal in **Attachment A**. Failure to submit invoices as instructed below may significantly delay payment under the Work Order.
- b) **Invoices must:**
 - (i) be submitted to vendorinvoices@glo.texas.gov;
 - (ii) be supported by documentation that, in the judgment of the GLO, allows for full substantiation of the costs incurred; and
 - (iii) prominently display **"GLO Work Order No. E583 under GLO Contract No. 22-004-022."**

VI. PERFORMANCE PERIOD, TERMINATION, AMENDMENTS

- a) This Work Order is effective on the date last signed and shall terminate upon the earlier of the completion of the Project, in the GLO's sole determination, or August 31, 2026 ("Performance Period").
- b) Notwithstanding the effective date of this Work Order, Provider must not incur charges or begin work before the date indicated on the GLO's written Notice to Proceed (NTP). The GLO may deliver the NTP to Provider by email or fax. Any services Provider performs or costs Provider incurs before the date established in the NTP or after the Contract's or Work Order's termination or expiration are performed at Provider's sole risk and the GLO may choose not to compensate Provider for such services.
- c) The GLO reserves the right to, at any time during the Performance Period, terminate, halt, or defer all or any portion of the work included in the Scope of Services of this Work Order. If such an event occurs: (1) Provider must follow all directions included in the GLO's notice; and (2) the Parties agree that the Work Order may require revision by written Amendment.
- d) Material changes to this Work Order may be made only by written agreement of the Parties. **Notwithstanding the preceding**, the GLO Project Manager may approve extensions to Deliverable Due Dates within the confines of the Performance Period. Such approvals must be in writing, may be delivered by regular mail, electronic mail, or facsimile transmission, and shall become part of the GLO's Project file.

VII. MISCELLANEOUS

- a) This Work Order amends and forms a part of the Contract, all provisions of which not amended herein remain in force and effect.
- b) Except as otherwise expressly provided in this Work Order, terms defined in the Contract have the same meanings in this Work Order.
- c) If the Contract, this Work Order, or any Attachments conflict, such conflicts shall be resolved in the order of priority established in the Contract. If the Work Order and Attachments to the Work Order conflict, such conflicts shall be resolved in the following order of priority: first, the Work Order; then Attachment B to the Work Order; then Attachment A to the Work Order.
- d) Subject to the terms and conditions of the Contract, Provider may subcontract with others for performance of some or all of the services described herein. Whether or not it is included in Attachment A, no subcontract, Subcontractor's proposal, nor any terms or conditions attached to such subcontract or proposal shall apply to the GLO. The GLO does not agree to and is not bound by any subcontract, Subcontractor's proposal, nor any terms or conditions attached to such subcontract or proposal.

SIGNATURE PAGE FOLLOWS

**SIGNATURE PAGE FOR WORK ORDER NO. E583
UNDER GLO CONTRACT NO. 22-004-022**

GENERAL LAND OFFICE

MOTT MACDONALD, LLC

DocuSigned by:



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Mark A. Havens, Chief Clerk

Date of execution: 5/23/2024

DocuSigned by:

By: **David Skipper**

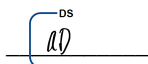
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Name: David Skipper

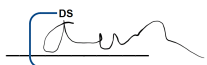
Title: Senior Vice President

Date of execution: 5/23/2024


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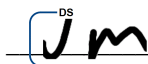
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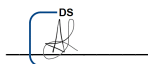
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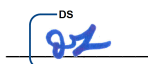
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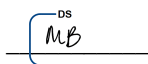
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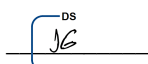
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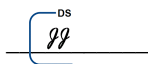
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ATTACHMENTS TO THIS WORK ORDER:

ATTACHMENT A – PROVIDER’S PROPOSAL

ATTACHMENT B – REQUIRED INSURANCE AND FORM

ATTACHMENTS FOLLOW



110 Wild Basin Ste 100
Austin, TX 78746

T (512) 342-9516
mottmac.com

February 21st, 2024

Ms. Abigail Richardson
Coastal Resources Program
Texas General Land Office
1700 North Congress Ave.
Austin, TX 78701
512-463-1864

RE: **Scope of Work**
City of Port Lavaca Harbor of Refuge Project – CEPRA Cycle 13 Project #1783
Rev1

Dear Ms. Richardson,

The Mott MacDonald Team (Provider) is pleased to submit this scope of work for engineering services for the City of Port Lavaca Harbor of Refuge Project. This scope of work includes a feasibility study, preliminary design, permitting, and final design for protecting approximately 5,750-ft of Port Lavaca Bay shoreline and creating up to 30 acres of new wetlands through beneficial use of dredged material at the Harbor of Refuge.

The work outlined in this scope of work consists of new data collection, coastal engineering analyses and numerical modeling efforts, development and evaluation of project alternatives, developing a preliminary design of the preferred alternative, developing a regulatory permitting package, coordinating regulatory approval through the permitting process, and developing a final design for-construction bid package.

Task 1. Project Initiation and Project Management

Mott MacDonald as the Professional Service Provider (PSP) will organize and attend a project kickoff meeting in Port Lavaca to discuss project site history, goals and expectations, schedule, and milestones. A site visit will be held at Harbor of Refuge to observe conditions at the site and to identify project extents. PSP will develop a meeting agenda and compile the kickoff meeting minutes for distribution to the project team. Meeting minutes will be prepared and include a summary of the meeting discussion and decisions, along with observations and photos from the site visit.

PSP will provide overall project management throughout the execution of this scope of work. This includes management of the delivery team, internal coordination meetings at key intervals throughout project delivery, management of subconsultants, and preparation of monthly progress reports to the Texas General Land Office (GLO).

Task 1 Schedule:

- Kickoff meeting within 3 weeks of NTP, or as soon as all team member schedules allow



- Kickoff meeting minutes: 1 week after completion of kickoff meeting
- Project Management: throughout project delivery

Task 1 Deliverables:

- Minutes from Kickoff meeting and site visit
- Monthly progress reports

Task 2. Data Collection

Existing data collection and new field data collection is required to develop a comprehensive database of physical data and available knowledge relevant to the Harbor of Refuge shoreline that will be used as the basis for the analysis and design.

Task 2.1. Existing Data Collection

PSP shall review available historical bathymetric and topographic survey efforts performed along the project vicinity, gather and review available geotechnical data, gather and review new bathymetric and topographic survey data, and gather and review new geotechnical data. Publicly available historic aerial photographs will be collected to quantify historical shoreline morphology. PSP shall perform a literature review and database search for information pertaining to oil and gas infrastructure including wellheads, superstructure, and pipelines in the project vicinity. PSP will compile existing information on coastal processes including data on winds, waves, tides, currents, sediment budgets, and sediment characteristics as available.

Task 2.2. New Survey Data Collection

New topographic and bathymetric data of the project site and surrounding areas will be collected to characterize the project shoreline, harbor inlet, and nearshore bathymetry. This data will be combined with existing data to form a robust set of topographic features which will be used in the coastal engineering analysis. Topographic and bathymetric data will be collected to define the bay bottom elevations within the project vicinity and adjacent flats; and more tightly spaced transects (50 to 100-ft intervals) will be collected within the immediate project area for design and material quantity calculations.

Task 2.3. Coastal Boundary Survey

A coastal boundary survey will be performed by a Licensed State Land Surveyor to delineate the boundary of submerged lands for the purposes of delineating GLO mineral rights. The survey will be performed in accordance with Section 33.136, Natural Resources Code, for the purpose of evidencing location of the shoreline in the area depicted in this survey as the shoreline that existed before commencement of erosion response activity. The line depicted on the survey fixes the shoreline for the purpose of locating a shoreline boundary, subject to erosion landward as approved by section 33.136. An initial discussion with the survey division of GLO will be scheduled to determine if there are any other issues at the site. An on the ground survey will then be completed to determine the boundary. The appropriate coastal boundary lines will be calculated, and preliminary plat and report compiled. Provider will meet with the GLO as required for final submission of the plat and report.

Note that the Coastal Boundary Survey is anticipated to be conducted after submission of permit application and receipt of public comments, when the timeline for permitting and project completion is more certain.

**Task 2.4. Project Site Geotechnical Investigation**

A geotechnical subsurface investigation plan will be developed to obtain data on sediment and soil characteristics, bearing capacity, and settlement of soils necessary for design, permitting, environmental compliance, and construction at the project site. Subsurface conditions at the site will be explored by performing 15 off-shore (marine) test borings extending to depths of 10-ft, 20-ft, and 50-ft below the mud line or the adjacent shoreline. In addition, grab samples will be collected at six (6) cross shore locations each to a depth of 1-ft to 2-ft below existing grade. The test borings will be drilled and sampled using a pontoon drilling rig. The grab samples will also be collected from the pontoon rig.

Task 2.5. Cultural Resources Investigation

The goal of the Cultural Resources Investigation is to determine the potential for intact and significant historic properties to be present within the project's Area of Potential Effect (APE), and to provide management recommendations for these resources, if identified.

Based on a preliminary review, the APE is along the western shoreline of Lavaca Bay, and extends out into the bay with maximum water depths of approximately -3 feet. The shallow water depth may restrict the ability to conduct a remote sensing marine survey.

The scale of the proposed undertaking may require a marine archaeological survey of the location to determine existing hazards/obstructions, generally characterize the substrate type as it relates to archaeological deposition and potential for archaeological site presence/absence, and document any magnetic anomalies or sonar images that could represent historic shipwrecks and/or other submerged cultural resources within the APE. Due to the expected difficulty in obtaining remote sensing survey data at state-specified standards, this scope of work has been broken into two separate tasks. Task 2.4.A will consist of agency coordination and literature review for determining if survey is necessary, and Texas Antiquities Committee (TAC) Permit Coordination to determine, if survey is required, the area(s) where survey is needed and the methods to be used given the shallow waters, and Task 2.4.B, which will consist of Field Investigation and Report Preparation that is anticipated to include terrestrial survey work, and Task 2.4.C to include marine survey work. The field investigation will be conducted only if required by regulatory agencies and is assumed to be required in this Scope of Work.

Task 2.5.A. Agency Coordination, Literature Review, and TAC Permit Coordination

The PSP's archaeological subconsultant will seek to eliminate the requirement for marine survey due to the shallow water, dynamic environment, and low probability of locating intact potentially significant resources within the submerged APE. Specifically, land masses or shoal water within the surf line will prevent remote sensing survey. This will require coordination with the agencies. In the event that THC requires a marine survey, this scope of work and cost estimate will include costs for the marine survey option. It is anticipated that all agency coordination will be conducted via letter, email, and telephone. Should agency consultation result in any additional actions not outlined in this proposal, costs will be determined under a separate estimate.

The PSP's archaeological subconsultant will prepare a scope of work and application for a Texas Antiquities Permit for a marine survey, if required. A representative of the sponsoring (funding) entity and the GLO will be required to sign the permit application for the marine portion of the project. The PSP's archaeological subconsultant will also prepare a scope of work and application



for a Texas Antiquities Permit for the terrestrial survey through agency coordination. It is understood that the terrestrial project area extends across properties owned and controlled by the Texas Parks and Wildlife Department (TPWD) and Calhoun County, as such a representative of the sponsoring (funding) entity and the TPWD and Calhoun County will be required to sign the permit application for the terrestrial portion of the project. The THC and U.S. Army Corps of Engineers (USACE) will be provided with a scope of work to review prior to fieldwork mobilization. All parties must sign the permit application form, USACE and THC review the scope of work, and issuance of an Antiquities Permit number, and is a process that may take between three and 30 days. Fieldwork will be scheduled after the permit number has been received via email.

Site file research will take place by consulting the online Texas Sites Atlas and the Automated Wreck and Obstruction Information System (AWOIS) and result in a listing of all cemeteries, archaeological sites, marine wrecks, and National Register properties within and near the APE. Site file research will be used to supplement the development of a historic context to the area. Additional documentary research will be conducted in order to provide an understanding of the development and history of the surrounding area, and to develop a regional context of the area and discuss the significance of previously identified National Register properties. Literature and site file research will determine the likelihood that these, or other recorded sites in close proximity, are within the APE.

Task 2.5.B. Terrestrial Field Investigations

Mobilization:

The terrestrial field investigations will consist of pedestrian survey and shovel test excavation within the terrestrial APE. The interval and number of shovel tests will be increased in areas with a higher potential for containing intact cultural resources, based on background research or field observation. Shovel tests will be excavated along transects at an interval of approximately 30 meters (100 feet) in the areas of highest potential to contain archaeological sites, primarily those areas along the bayou and tidal margins. This testing interval will be increased in sections of the property as required by variations in topography and degree of prior disturbance or decreased as needed for site delineation. Shovel tests will generally be terminated at relatively shallow depths due to inundation but may extend to a maximum depth of approximately 1 meter (3 feet) if deep alluvial sediments on topographic rises are present. When possible, all soil will be screened through ¼ inch wire mesh; clay soils will be hand sorted.

The need for deep testing will be assessed by the Principal Investigator based on soils data gathered during shovel testing, and an assessment of planned land use impacts provided by the client. If deep testing is required, the cost for doing so will be determined separately. The PSP's archaeological subconsultant will pursue a no-collect strategy for non-diagnostic artifacts encountered during the survey phase. The cost estimate assumes that field conditions will allow the survey of the 12-acre terrestrial area to be completed within three workdays by a three-person crew. Confirmation of the presence or absence of archaeological sites, and site location and dimensions, if present, will be provided to the client as soon as possible following fieldwork. Adverse field conditions and/or the need to delineate large archaeological sites. This proposal assumes that no more than one archaeological site will be discovered within the APE.

**Task 2.5.C. Marine Survey and Analysis**

The PSP's archaeological subconsultant's recent experience in the project area indicates that the marine portion of the project area is non-navigable with a standard survey vessel deploying remote sensing gear. Therefore, alternate methods are required. The two methods proposed for the shallow near-shore area are deploying an Autonomous Surface Vehicle (ASV) designed to work in shallow waters, and/or probing and coring via wading the shallows. Only waters of Matagorda Bay will be examined via the proposed methods. Aqueous areas of Boggy Bayou within the APE will be examined by a shoreline survey examining for eroding sites. Additionally, the probes will be utilized to examine along the bayou shoreline within the APE. Occasional cores will be collected to confirm probe data acquired along the shoreline.

The PSP's archaeological subconsultant will provide a qualified marine archaeologist (Principal Investigator) to be present at the project site during all marine survey and data collection activities for the Project. The PSP's archaeological subconsultant will provide a support vessel, with pilot, for deploying the ASV and monitoring of real time data being collected. Remote sensing data suitable for archaeological investigation suitable to THC requirements will be acquired. The survey area/APE will include the project footprint as well as 50-meter (164-foot) buffers around the APE within Matagorda Bay, as required by the THC. The survey will be conducted only in safely navigable areas, which are defined as presenting no hazard to crew, vessel or equipment. Shallow waters area and surf conditions may prevent full survey of the entire defined APE and buffer area. These areas will be waded and probed.

The budget supports a mobilization and demobilization day and ASV survey within three, 8-hour workdays. There is no provision for a down day or delays due to weather, equipment issues, access to the APE, or heavy watercraft traffic. Should more than one day be required, or additional mobilizations/demobilizations be needed, additional budget may be necessary.

To allow for the detection of subtle magnetic anomalies typically associated with smaller wooden vessels and to satisfy Texas state marine archaeology survey requirements, it is anticipated that survey lane spacing across the survey area will not exceed 20 meters (65 feet). All survey data will be presented in State Plane coordinates. Magnetic data will normally be contour plotted at five and/or 10 gamma intervals. Sonar records will be inspected for potential man-made features present on the bottom surface. Copies of the geophysical data collected will be in standard survey format. The PSP's archaeological subconsultant will have access to both raw and post processed data and has qualified data processing personnel to ensure accurate analysis of the data. Mapping products associated with archaeological survey results and recommendations will be created by Gray & Pape for report presentation.

Task 2.5.D. Report Preparation

A draft report of investigations for marine survey will be provided for review and approval by the THC, to satisfy Texas Antiquities Code and USACE permit requirements, and will include a full representation of the proposed project, background research, methods, analysis, results and recommendations, and appropriate data appendices. The draft report will be prepared within two to three weeks following completion of the survey. Draft review by the agencies can take between 30 and 45 days. Final reports are submitted once the draft has been approved and once all records curation activities have been completed.

**Task 2.6. Habitat Surveys**

Provider will conduct Habitat Surveys at the project site in preparation of a USACE Section 10/404 regulatory permit application. Task 2.5 will include a waters and wetlands delineation, tidal elevation survey, and submerged aquatic resources survey, and tidal boundary survey.

Task 2.6.A. Habitat Survey Planning and Development

Prior to conducting the waters and wetlands delineation survey and habitat characterization, tidal elevation survey, and submerged aquatic resources survey, readily available desktop data including survey boundaries provided by the client, prior Approved Jurisdictional Determinations (AJDs) related to the survey area, USACE AJD regulations and guidance documents, TPWD's published seagrass and oyster data, historical tide data, GLO resource management codes, GLO state tract boundaries, available bird rookery data, United States Fish and Wildlife Services' (USFWS) relevant listed species literature, regional and local studies, existing bathymetric and topographic data, current and historical aerial imagery, nautical charts, soils data, floodplain maps, National Wetland Inventory Maps, United States Geological Survey benchmarks, surveyor benchmarks and other pertinent data will be reviewed and analyzed.

Examination of all available desktop data will assist to refine the scope of field work for the waters and wetlands delineation and habitat characterization survey, tidal elevation survey, and submerged aquatic resources survey. Information gathered above will allow creation of survey and sampling plans, including establishment of survey area boundaries, GPS data loading, development of survey transects, preliminary terrestrial and marine survey observation point locations, onsite access and marine vessel routes, pinpoint probable areas of sensitive resources (wetlands, seagrasses, oyster reefs, etc.), hydrologic features, probable hydrologic connections, property boundary coordinates, benchmark coordinates, USACE SOP requirements for GPS use, and other components required by USACE guidance. The survey plans will be coordinated with the client for approval prior to conducting surveying activities.

Task 2.6.B. Waters and Wetlands Delineation Survey and Habitat Characterization

The PSP's environmental survey subconsultant will perform a waters and wetlands delineation survey and habitat characterization within the Harbor of Refuge project site (approx. 213.88 - acres) boundary provided by the PSP. The waters of the U.S. and wetlands survey will be conducted in accordance with the USACE Wetlands Delineation Manual, 1987, the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Regional Supplement (Version 2.0), November 2010 and USACE Regulatory Guidance Letters (RGL) and policies. In addition to delineating waters and wetlands, a habitat characterization will also be conducted. Data collected as part of the waters and wetlands delineation will be necessary for preliminary design to minimize impacts to sensitive habitats. The collected data will be utilized during regulatory coordination to calculate waters and wetlands impacts of the proposed design and to determine any mitigation that may be required.

Field data collected from the survey effort will be used to prepare maps and GIS files to determine and quantify the location, boundaries, size, and types of potentially jurisdictional waters and wetlands. Provider will prepare a summary report of findings to document methods and locations of potentially jurisdictional waters and wetlands areas within the survey area.



Task 2.6.C. Tidal Elevation Survey

A tidal elevation survey will be conducted to determine location of the High Tide Line (HTL) and Mean High Water (MHW) elevations to be delineated along the beach. Databases will be reviewed and calculated based on best available data (i.e., accessible NOAA and TCOON stations). The PSP's environmental survey subconsultant will utilize either a sub-centimeter Trimble RTK or Geo 7X GPS. Locations of HTL and MHW will be included within the waters and wetlands delineation and habitat survey report and also within the submerged aquatic resources survey report.

Task 2.6.D. Submerged Aquatic Resources Survey

A submerged aquatic resources survey to identify the presence/absence of seagrass and oysters, will be performed as part of this task with data taken along the bathymetric/wading transects to delineate extents of these resources within the proposed project site. The PSP's environmental survey subconsultant will sample along transects spaced at 100-ft intervals. To determine the presence/absence of seagrass, Triton will conduct wading hand detection samples every 20-ft in waters shallower than -3.0 ft NAVD 88 or utilize a 6-inch diameter core in waters deeper than -3.0 ft NAVD 88, every 60-ft. If hard substrate is encountered by sounding, Triton will collect 6-inch diameter core samples from the bottom to determine if a live reef, shell reef, shell hash, or other shell is present. The boundaries (i.e., acreage extents) of any seagrass beds and/or live oyster reef present will be mapped within the 171.31-acre survey boundary.

Field data collected from the survey effort will be used to prepare maps and GIS files to determine and quantify the location, boundaries, and size of submerged aquatic resources. Provider will prepare a summary report of findings to document methods and locations of submerged aquatic resources within the survey area.

Task 2 Schedule:

- New survey data collection < 1 month from NTP
- Environmental survey 3 months from NTP
- Cultural resources survey to be completed after completion of 30% design
- Geotechnical analysis to be completed after completion of 30% design

Task 2 Deliverables:

- Hydrographic and Topographic Survey data files
- Coastal boundary survey in AutoCAD drawing format and PDF format.
- Summary of data collection will be included as a Section in the Preliminary Design Report (Task 4).
- Appendices to Preliminary Design Report include:
 - Hydrographic and Topographic (1) electronic file in PDF format.
 - Geotechnical Investigation Report, one (1) electronic file in PDF format.
 - Cultural Resource Investigation Report, one (1) electronic file in PDF format.
 - Waters and Wetlands Delineation and Habitat Characterization Survey Report, one (1) electronic file in PDF format.
 - Submerged Aquatic Resources Survey Report, one (1) electronic file in PDF format.



Task 3. Coastal Engineering and Alternatives Analyses

A Coastal Engineering Analysis will be developed to reflect current conditions at the project site. The coastal engineering will include an analysis of water elevations, winds, wind-generated waves, storm activity, and the resulting tide, wind, and storm impacts on the project area. Typical and extreme value statistics of winds, waves, and water levels will be developed using relevant data. Much of these analyses have been conducted for recent projects, at Magnolia Beach and for the City of Port Lavaca, and will be utilized here to reduce effort where possible.

Numerical wave modeling will be conducted under this task to evaluate the impact of construction of the proposed structure on wave transformation. The numerical wave models to be used for this task include: SWAN or similar and will be used to evaluate waves impacting the project sight. PSP will utilize models and model domains from previous projects (where appropriate) to efficiently develop the wave model and incorporate the new project topography and bathymetry collected under Task 2.

The coastal engineering analysis and modeling efforts will provide an understanding of the hydrodynamics at the project site for existing conditions and with project improvements, which can then be used as part of the development of alternative solutions.

PSP will assess the existing conditions along the three main sections of Harbor of Refuge shoreline and the adjacent marsh areas, identify issues in the project vicinity, and develop a set of project goals and performance criteria for the alternative solutions. Analysis will include analytical, empirical, and numerical modeling using the existing data, newly collected data from Task 2, and understanding of the project site developed in this task. PSP shall define conceptual level alternatives to be analyzed to meet the project goals and performance criteria. We anticipate three (3) alternatives will be developed to a conceptual level.

Evaluation criteria will be developed in coordination with the project stakeholders. PSP will conduct an analysis of the three (3) alternatives using empirical and numerical modeling analysis tools for the evaluation criteria. Conceptual level cost estimates will be developed for each alternative and will include initial construction quantities and costs estimates of maintenance requirements related to the project lifetime.

The results of the evaluation of the alternatives will be placed in an alternatives analysis matrix that will compare all alternatives based on the evaluation criteria. Evaluation criteria is anticipated to include, but not be limited to, performance, longevity, benefits, impacts, and project lifetime cost factors.

PSP will organize and attend an in-person meeting at GLO offices to present the three alternative concepts and a preferred alternative will be selected. Prior to the meeting, PSP will prepare and submit to GLO a draft presentation and technical report describing the alternative concepts and proposed evaluation criteria for internal review and comment. PSP shall compile the meeting minutes and distribute them via email to the GLO team. Feedback and comments received will be incorporated into the final presentation and report. The final results will be documented in the Coastal Engineering and Alternatives Analysis Report which will be submitted to the GLO upon completion of this task.

**Task 3 Schedule:** 6 months from NTP**Task 3 Deliverables:**

- Presentation of Recommended Alternatives & Minutes (PowerPoint presentation and meeting minutes delivered in PDF format)
- Coastal Engineering and Alternative Analysis Report

Task 4. Preliminary Engineering Design

The preferred concept selected under the previous study will be developed to a preliminary (30% design) level. The preferred alternative is anticipated to consist of Articulated Concrete Block Mat (ACBM) placement (or equivalent product) along the inner harbor shoreline, an artificial reef system, a rock breakwater system, a groin, beneficial use marsh area, and vegetated slope protection along the Harbor peninsula shoreline.

The preferred concept selected from Task 3 will be developed to a preliminary (30% design) level. The proposed rubble mound and groin cross-section geometry and orientation will be sized for stability during a 25-year event. The cross-section(s) will be developed based on the stable stone size and coastal processes. The proposed beneficial use marsh area will be designed to integrate into the existing shoreline behind the area of protection.

Numerical modeling will be conducted to inform the design of the proposed structures. Provider will utilize modeling results from Task 3. Extreme storm wave conditions are required for use in development of the design of coastal structures. A numerical wave model (SWAN, or similar) will be developed to simulate wave generation and transformation to the project shoreline, and wave analysis will be conducted to develop a statistically representative characterization of the wave climate that drives shoreline morphology. Waves from extreme storm events will also be generated at the project. We assume that extreme storm of a 25-yr return period will be evaluated.

Provider will develop a preliminary opinion on probably construction cost for capital and maintenance requirements. Preliminary level plans will be developed for the preferred alternative designs. The results of this preliminary design will be developed into a technical memorandum and presentation. Provider will hold a video conference call with the GLO and project partners to discuss the results.

Task 4 Schedule:

- Preliminary Design Report: 6 months from NTP

Task 4 Deliverables:

- Preliminary Design Report including Preliminary Design Plans in digital PDF format
- Preliminary Design presentation, one (1) electronic file in PDF format
- Preliminary Design conference call meeting minutes, one (1) electronic file in PDF format

Task 5. Regulatory Permitting and Coordination**Task 5.1 Development of USACE Section 10/404 Permit Application**

Provider will prepare a USACE Section 10/404 regulatory permit application to seek authorization for construction of the proposed project. Prior to development of the permit



application, field surveys for waters of the U.S. and wetlands, seagrass, and oysters will be conducted at the proposed project site (performed by subcontractor and included under Task 2.4) including habitat characterization. Survey results will be documented in reports to be submitted with the USACE permit application for this project. The reports will include maps showing the location and types of waters of the U.S. and wetlands, seagrass, and oysters, if present.

In order to initiate the permitting process, a pre-application meeting will be held with the USACE-Galveston District Office. During this meeting, the proposed project will be discussed, and feedback obtained before submittal of the USACE permit application. Subsequently, a USACE Individual Permit (IP) permit application, including a cover letter, permit application form (ENG Form 4345), permit-level drawings, habitat survey reports, Coastal Management Program (CMP) consistency review form, and 404(b)(1) Alternatives Analysis will be submitted to USACE for review and processing. Provider will coordinate directly with the Texas Commission on Environmental Quality (TCEQ) to seek a 401 Water Quality (WQ) Certification for this project and will develop and submit a 401 Water Quality Certification Questionnaire and Alternatives Analysis directly to TCEQ.

After submittal of the USACE permit application, a Joint Evaluation Meeting (JEM) will be scheduled to present the project to USACE and other local, state, and federal resource agencies. The purpose of the JEM is to present the project to resource agencies to obtain feedback that will be useful to address agency comments resulting from the 30-day Public Notice (PN). Meeting notes summarizing resource agency comments/concerns discussed during the JEM will be developed and provided as a deliverable.

Once USACE places the project on 30-day PN and comments are received, a Response to Comments document will be developed and submitted to USACE to address resource agency and public concerns. This task assumes two (2) rounds of Requests for Information (RFI). We assume the RFI response will be able to be generated from work conducted in previous tasks and will not require substantial new analysis or modeling to be conducted. Should substantial new analysis or modeling need to be conducted, it will be conducted under a separate Scope of Work. PSP will coordinate with USACE in attempt to facilitate issuance of the IP authorization. This task includes responding to minor information requests by USACE.

Task 5.2 Development of USACE Real Estate License/Section 408 Application

If USACE Real Estate/Operation Divisions identify the proposed project to be located within a federal easement or federally-operated area, such as borrow source from a USACE owned/operated dredged material placement area, Provider will assist with development and submittal of a USACE Real Estate License/Section 408 application. The USACE Real Estate License/Section 408 application will include a cover letter, Multi-Purpose Application for Real Estate grants and Civil Work Alteration projects (SWG-Form 701i), a copy of the approved USACE regulatory permit, W-9, Articles of Incorporation, and GIS shapefiles for the proposed project. Provider will coordinate with USACE Real Estate/Operations Divisions to seek issuance of a Real Estate License of Section 408 approval, whichever instrument is selected by USACE to authorize the project.

Task 5.3 Development of a Submerged Land Lease Application

For those portions of the proposed project located on submerged land, Provider will assist in development and submittal of a lease application. The lease application will include a lease



application form and project drawings. Coordination with landowner will be accomplished to seek issuance of the lease for portions of the project located on submerged land.

Task 5 Schedule:

- Develop Section 10/404 permit application completed 6 weeks from completion of Task 3 (Preliminary Engineering Design). Permit acquisition is expected to take 12 months (but potentially as much as 18+ months, depending upon resource agency review time and level of effort to respond to public and resource agency comments).
- Attend Joint Evaluation Meeting completed 10 weeks from completion of Task 3 (Preliminary Engineering Design).
- Respond to resource agency and public comments completed approximately 30 days from official receipt of comments from USACE.
- Develop USACE Section 408/Real Estate License application (If requested during 30-day PN)
- Develop GLO CL application completed 8 weeks from complete of Task 3 (Preliminary Engineering Design). Lease acquisition is expected to take 3-6 months.
- Issuance of Individual Permit authorization is expected to take 12 months (but potentially as much as 18+ months, depending upon resource agency review time and level of efforts to respond to public and resource agency comments).

Task 5 Deliverables:

- USACE Section 10/404 permit application
- Meeting notes from JEM
- Response to Comments document to address resource agency and public concerns
- Section 408 Approval or Real Estate License
- GLO Coastal Lease
- Section 10/404 Individual Permit authorization

Task 6. Final Design

This task includes work necessary to develop the design of the project features and develop a final design and 95% level construction contract documents. The final design task will include the following:

- Specific parameters for the structures, beneficial use areas, and vegetated slope protection shall be refined for constructability and to meet project goals. Parameters include structure crest height, crest width, slope, marsh area elevation, vegetated area design slope and plant spacings, ACBM slope and tie-ins.
- Elements will be evaluated to add longevity to the breakwater and groin structures including bedding stone, toe, and geotextile, as appropriate.
- The toe of the breakwaters and groin will be designed to mitigate for scour from waves.
- Quantities of construction materials will be estimated.
- Logistical transportation of materials to the site and staging/stockpiling areas will be evaluated.



- Construction templates will be finalized, and estimates made to determine project costs.
- All in water structures are anticipated to require navigation aids in accordance with USCG regulations for private aids to navigation. The navigation aids are anticipated to be pile-mounted daymarks or buoys.

A 70% level completion set of technical specifications in CSI format (most recent version), plans, and cost estimate will be submitted to GLO for review and comment. Comments from the review will be incorporated into the plans and specifications at 100% completion.

A 95% design completion set of special provisions, technical specifications, plans, and cost estimate along with a basis of design document will be submitted to GLO for review and comment. The design will provide details on all project features, limits for access to the project site, and estimates of project quantities. The 95% design documents will be submitted to GLO for review and comment. Provider will attend one conference call at the time of the 95% submittal to discuss the features and details of the project. Comments from the design review and meeting will be captured in comment/response records. Comments on the basis of design document will be incorporated into the document and finalized. The Final 100% Design plans, specifications, and cost estimate will not be compiled and will be left to completed upon the startup of the next project phase to allow for incorporation of potential changes between completion of this scope and start of subsequent phase.

Task 6 Schedule: 2 months from receipt of permit

Task 6 Deliverables:

- 70% level completion set of technical specifications, plans, and cost estimate, in electronic file in PDF format
- 95% level completion set of construction documents (contract documents, plans, specifications, environmental compliance documents, and cost estimate, in electronic file in PDF format
- Basis of Design Document, in electronic file in PDF format

Assumptions

- Proposed project schedule assumes 2 weeks for stakeholder comments between draft and final deliverables.
- Access (right of entry) will be coordinated and secured by GLO.
- Unless stated otherwise, all deliverables to be delivered electronically in PDF format via email.
- This scope of work includes waters and wetlands delineation, seagrass, and oyster survey data collection only. No other supplementary studies, evaluation, or data collection are included for the purposes of permitting. This scope of work does not include development of a compensatory mitigation plan. If required by the U.S. Army Corps of Engineers, a separate Scope of Work can be developed and submitted to Calhoun County and GLO, prior to initiation of services.
- No grant administration is included in this scope of work.



- The proposed schedule is contingent upon resource agency review and permit procurement timeline and is subject to change. Permit acquisition timeline is estimated based on experience with similar permits.
- The current scope of work does not include mitigation or management of potential cultural resources beyond what is defined by Task 2.4. Cultural Resource Investigation. If cultural resources are found, the associated management and mitigation will be conducted under a separate scope of work. During scoping discussions, the Cultural Resource subconsultant has indicated based on their experience that it is possible and likely for cultural resources to be found at the project site.

Fee Estimate

Task 1. Project Initiation and Project Management	\$28,698
Task 2. New Data Collection.....	\$262,659
Task 3. Coastal Engineering and Alternatives Analysis.....	\$76,930
Task 4. Preliminary Design	\$31,491
Task 5. Regulatory Permitting and Coordination.....	\$130,511
Task 6. Final Design.....	\$157,577
Total.....	\$687,866

Thank you for the opportunity to present this scope of work on this important project. Please do not hesitate to contact Josh Carter at 512-615-0816 with any questions or if you require additional information.

Sincerely,

Contractual Representative

Handwritten signature of Amber N. Kirk in blue ink.

Amber Kirk, PE
Principal Project Manager

Handwritten signature of Josh Carter in black ink.

Josh Carter, PE, D.CE
Project Lead



BILLING RATES

	2023	2024	2025	2026
<u>Classification</u>	<u>Billing Rate/hr</u>			
Principal Engineer II	\$ 354.00	\$ 372.00	\$ 391.00	\$ 411.00
Principal Engineer I	\$ 298.00	\$ 313.00	\$ 329.00	\$ 345.00
Senior Project Manager	\$ 280.00	\$ 294.00	\$ 309.00	\$ 324.00
Project Manager	\$ 212.00	\$ 223.00	\$ 234.00	\$ 246.00
Senior Project Engineer	\$ 257.00	\$ 270.00	\$ 284.00	\$ 298.00
Engineer VII	\$ 212.00	\$ 223.00	\$ 234.00	\$ 246.00
Engineer VI	\$ 192.00	\$ 202.00	\$ 212.00	\$ 223.00
Engineer V	\$ 180.00	\$ 189.00	\$ 198.00	\$ 208.00
Engineer IV	\$ 163.00	\$ 171.00	\$ 180.00	\$ 189.00
Engineer III	\$ 148.00	\$ 155.00	\$ 163.00	\$ 171.00
Engineer II	\$ 134.00	\$ 141.00	\$ 148.00	\$ 155.00
Engineer I	\$ 129.00	\$ 135.00	\$ 142.00	\$ 149.00
Specialist VI / Designer VI	\$ 186.00	\$ 195.00	\$ 205.00	\$ 215.00
Specialist V / Designer V	\$ 180.00	\$ 189.00	\$ 198.00	\$ 208.00
Specialist IV / Designer IV	\$ 171.00	\$ 180.00	\$ 189.00	\$ 198.00
Specialist III / Designer III	\$ 162.00	\$ 170.00	\$ 179.00	\$ 188.00
Specialist II / Designer II	\$ 148.00	\$ 155.00	\$ 163.00	\$ 171.00
Specialist I/ Designer I	\$ 129.00	\$ 135.00	\$ 142.00	\$ 149.00
GIS - CADD	\$ 117.00	\$ 123.00	\$ 129.00	\$ 135.00
CADD Drafter	\$ 108.00	\$ 113.00	\$ 119.00	\$ 125.00
Administrative	\$ 111.00	\$ 117.00	\$ 123.00	\$ 129.00

Billing rates subject to an annual escalation of 5% per year (rounded to nearest whole dollar).

Rates beyond the years shown will be adjusted accordingly.

Billing rates valid from January 1 through December 31 of the specified year.

- a. Subcontractors = Cost +10%
- b. Delivery = Cost
- c. Reproduction (Outside) = Cost
- d. Equipment and Misc. = Cost
- e. Mileage = State Rate
- f. Meals = State Rate
- g. Lodging = State Rate
- h. Rental Vehicle = Cost
- i. Air Fare = Cost
- j. Mylar Plots = we do not provide mylar plots
- k. Color Plots = \$7.85/SF
- l. Vellum Plots = we do not provide vellum plots
- m. Bond Plots = \$1.00/SF
- n. Xerox (8 1/2 x 11) = \$0.15/sheet
- o. Color Xerox (8 1/2 x 11) = \$0.20/sheet
- p. Xerox (11 x 17) = \$0.22/sheet

REQUIRED INSURANCE

GENERALLY. Provider shall, at its sole expense, acquire, maintain, and keep in force for the duration of this Contract, insurance in the amounts attached herein and under the requirements specified herein. Furthermore, unless specified or otherwise agreed to by the GLO, the required insurance shall be in effect prior to the commencement of work by Provider and shall continue in full force until the earlier as appropriate of (i) the expiration of this Contract; or (ii) such time as the GLO notifies Provider that such insurance is no longer required. Any insurance or self-insurance available to the GLO shall be in excess of, and non-contributing with, any insurance required from Provider. Provider's insurance policies shall apply on a primary basis. If, at any time during the Contract, an insurer or surety fails to provide insurance to Provider or otherwise fails to comply with the requirements of this Contract, Provider shall immediately notify the GLO and replace such insurance or bond with an insurer meeting such requirements. General aggregate limits of Provider's Commercial General Liability policy shall apply per project. Provider's auto insurance policy shall apply to "any auto."

Approval. Prior approval of the insurance policies by the GLO shall be a condition precedent to any payment of consideration under this Contract and insurance must be submitted for review and approval by the GLO prior to the commencement of work. Any failure of the GLO to timely approve or failure to disapprove the insurance furnished by Provider shall not relieve Provider of Provider's full responsibility to provide the insurance required by this Contract.

Continuing Coverage. The GLO's approval of any changes to insurance coverage during the course of performance shall constitute an ongoing condition subsequent to this Contract.

Renewal. Provider shall provide the GLO with renewal or replacement certificates no less than thirty (30) days before the expiration or replacement of the required insurance.

Additional Insured Endorsement. The GLO, its officers, employees, and authorized agents shall be named as additional insureds for all liability arising under this Contract except on Workers' Compensation and Professional Liability policies. **An original additional insured endorsement signed by an authorized insurance company representative must be submitted to the GLO to evidence the endorsement of the GLO as an additional insured on all policies, and the certificate(s) must reference the related GLO Contract Number.**

Subrogation. Each liability insurance policy, except Professional Liability, shall provide for a waiver of subrogation as to the State of Texas, the GLO, and their officers, employees, and authorized agents, and shall be issued by insurance companies authorized to do business in the State of Texas, and currently rated by A.M. Best as "A-" or better.

Policy Cancellation Endorsement. Except for ten (10) days' notice for non-payment of premium, each insurance policy shall be endorsed to specify that without 30 days' prior written notice to the GLO, the policy shall not be canceled, non-renewed, or coverage and/or limits reduced or materially altered, and shall provide that notices required by this paragraph shall be sent by certified mail to the address specified in this Contract. A copy of this signed endorsement must be attached to this Contract.

Alternative Insurability. Notwithstanding the requirements of this Attachment, the GLO reserves the right to consider reasonable alternative methods of insuring the contract in lieu of the insurance policies and/or bonds required. It will be Provider's responsibility to recommend to the GLO alternative methods of insuring the Contract. Any alternatives proposed by Provider should be accompanied by a detailed explanation regarding Provider's inability to obtain insurance coverage as described in this Contract. The GLO shall be the sole and final judge as to the adequacy of any substitute form of insurance coverage.

INSURANCE REQUIRED:

\$1 MILLION COMMERCIAL GENERAL LIABILITY (EACH OCCURRENCE)

\$2 MILLION COMMERCIAL GENERAL LIABILITY (AGGREGATE LIMIT)

\$1 MILLION CSL AUTOMOBILE INSURANCE

\$1 MILLION ERRORS AND OMISSIONS, PER CLAIM

STATUTORY WORKERS' COMPENSATION & EMPLOYERS LIABILITY

- \$1 MILLION EACH ACCIDENT
- \$1 MILLION DISEASE EACH EMPLOYEE
- \$1 MILLION DISEASE POLICY LIMIT

NOTE: Insurance certificates must be in the form approved by the Texas Attorney General, a sample of which follows this page.

Insurance Certificates must:

- (a) be submitted to insurance@GLO.TEXAS.GOV
- (b) **prominently display "GLO Contract No. 22-004-022 and Work Order No. E583."** and
- (c) Name the General Land Office as an additional insured.

Failure to submit required insurance forms as instructed may significantly delay the start of work under the Contract.

REQUIRED FORM OF CERTIFICATE FOLLOWS THIS PAGE



Contract No. *****

DATE (MM/DD/YYYY)

CERTIFICATE OF LIABILITY INSURANCE

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	<div style="border: 2px solid red; padding: 5px; display: inline-block;">Required form of Insurance</div>	CONTACT NAME:	
		PHONE (A/C, No, Ext):	FAX (A/C, No):
INSURED		E-MAIL ADDRESS:	
		INSURER(S) AFFORDING COVERAGE	
		INSURER A :	NAIC #
		INSURER B :	
		INSURER C :	
		INSURER D :	
		INSURER E :	
		INSURER F :	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY						EACH OCCURRENCE \$
	COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	CLAIMS-MADE OCCUR						MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$
							GENERAL AGGREGATE \$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$
	POLICY PRO-JECT LOC						\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	ANY AUTO						BODILY INJURY (Per person) \$
	ALL OWNED AUTOS						BODILY INJURY (Per accident) \$
	SCHEDULED AUTOS						PROPERTY DAMAGE (Per accident) \$
	HIRED AUTOS						\$
	UMBRELLA LIAB						EACH OCCURRENCE \$
	EXCESS LIAB						AGGREGATE \$
	DED RETENTION \$						\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATU-TORY LIMITS OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICE/MEMBER EXCLUDED? (Mandatory in NH)	Y/N	N/A				E.L. EACH ACCIDENT \$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE