WORK ORDER NO. E247
UNDER GLO CONTRACT NO. 21-113-001

Pursuant to **GLO CONTRACT NO. 21-113-001** ("Contract") between the **GENERAL LAND OFFICE** ("the GLO") and **EASTEX ENVIRONMENTAL LABORATORY, INC.** ("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. E247 ("Work Order"). This Work Order amends the Contract, all provisions of which not amended herein remain in force and effect.

1. PROJECT DESCRIPTION

Provider shall perform or cause to be performed: collection and analysis of water samples from designated sampling stations in Brazoria County, Harris County and Matagorda County, Texas, in accordance with the Quality Assurance Project Plan (QAPP), incorporated herein by reference in its entirety for all purposes, as if physically attached; and notification of the public of water quality advisories (the "Project"). Provider shall perform the Project in accordance with the Contract, this Work Order and all Attachments, including the Work Order Work Plan, attached hereto as **Attachment A,** and the QAPP.

If the Contract, this Work Order, or Attachments to this Work Order conflict, such conflicts shall be resolved in the following order of precedence: first, the Contract; then attachments to the Contract in this order: Attachment A, Attachment B, Attachment C; then the Work Order, the QAPP, and Attachment A to the Work Order.

2. TASKS AND DELIVERABLES

Provider must perform all tasks and submit all Deliverables in accordance with the due dates and schedule in **Attachment A.** If Attachment A does not list a due date or schedule for a given task or deliverable, Provider must perform that task or submit that deliverable on or before the date specified by the GLO's Project Manager.

3. COMPENSATION

The total compensation due to Provider for services performed and costs incurred pursuant to this Work Order is not to exceed **$135,000.00,** which includes pre-approved travel, pre-approved supplies, and all other pre-approved expenses related to the performance of the Project.

Provider will be reimbursed **$35.00** per base sample taken in Brazoria County and repeat samples will be reimbursed as follows: **$400.00** for one repeat sample; **$225.00** for each two repeat samples; **$150.00** for each three repeat samples; **$120.00** for each four repeat samples; **$100.00** for each five repeat samples; and **$85.00** for each six or greater repeat samples.

Provider will be reimbursed **$34.00** per base sample taken in Matagorda County and repeat samples will be reimbursed as follows: **$400.00** for one repeat sample; **$225.00** for each two repeat samples; **$150.00** for each three repeat samples; **$120.00** for each four repeat samples; **$100.00** for each five repeat samples; and **$85.00** for each six or greater repeat samples.

Provider will be reimbursed **$50.00** per base sample taken in Harris County and repeat samples will be reimbursed as follows: **$125.00** for one repeat sample; and **$75.00** for each two repeat samples.

4. SUBMISSION OF INVOICES

Provider must submit invoices to the GLO in accordance with the Contract, this Work Order and **Attachment A**. Failure to submit invoices as instructed may significantly delay payment under the Work Order.

5. PERFORMANCE PERIOD

This Work Order is effective on September 1, 2023, and shall terminate upon the earlier of the completion of the Project, in the GLO's sole determination, or August 31, 2024 ("Performance Period").

6. TERMINATION OR INTERRUPTION OF WORK

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.

7. AMENDMENTS TO WORK ORDER

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, and may be delivered by regular mail, electronic mail, or facsimile transmission; and shall become part of the GLO's Project file.

SIGNATURE PAGE FOLLOWS

SIGNATURE PAGE FOR WORK ORDER NO. E247 UNDER GLO CONTRACT NO. 21-113-001

GENERAL LAND OFFICE

DocuSigned by:
7C299F4374E7497...
Mark A. Havens
Chief Clerk
Date of execution: 8/30/2023

EASTEX ENVIRONMENTAL LABORATORY, INC.

DocuSigned by:
By:
Name: Susan Cogar-Daniels
Title: CEO
Date of execution: 8/29/2023

OGC DS
PM DS
DIV DS
DIR DS
DD DS
SDD DS
DGC DS
GC DS
DLC DS

ATTACHMENT TO THIS WORK ORDER:

ATTACHMENT A – WORK ORDER WORK PLAN

INCORPORATED BY REFERENCE:

QUALITY ASSURANCE PROJECT PLAN

ATTACHMENTS FOLLOWS

BEACH WATCH WORK PLAN
Brazoria County, Harris County, and Matagorda County
September 1, 2023 to August 31, 2024

Introduction

As the lead state agency charged with implementing the Beaches Environmental Assessment and Coastal Health Act of 2000 (BEACH Act), the Texas General Land Office (GLO) will contract **Eastex Environmental Laboratory, Inc.** (Provider) to collect and analyze water samples, notify the public of beach water quality and to recommend and/or issue, water quality advisories when warranted.

Beach Watch Coordinator

Lucy Flores
Texas General Land Office
P. O. Box 12873
Austin, Texas 78711-2873
(512) 463-5134
lucy.flores@glo.texas.gov

I. QUALITY ASSURANCE PROJECT PLAN

All monitoring data must be collected according to the EPA approved Quality Assurance Project Plan (QAPP). Provider must adhere to the QAPP. **The Project Manager is required to download and read the document and return the signature page (Appendix D of the QAPP) to the GLO Beach Watch Coordinator.** If any conflicts arise between this work plan and the QAPP, the requirements of the QAPP shall take precedence. The QAPP can be downloaded at www.texasbeachwatch.com or accessed directly at http://cgis.glo.texas.gov/Beachwatch/docs/QAPP2021-2022.pdf

II. SAMPLING STATIONS AND SCHEDULE

All samples shall be collected in accordance with the Procedures for Providers set forth below and in the QAPP.

Sampling Stations. The Provider shall collect water samples from fixed sampling stations, depicted on the maps and station lists in Appendix C of the QAPP for **Brazoria County, Harris County, and Matagorda County**. The Provider shall follow the attached Sampling Schedule (Exhibit 1 of this Work Plan) and shall conduct additional sampling as required in Section V of this Work Plan. Based upon the contract amount, for **Brazoria County, Harris County, and Matagorda County** shall be collected by **Eastex Environmental Laboratory, Inc.** over **40** sampling weeks between **September 1, 2023 and August 31, 2024**.

Sampling Depth. The Texas Beach Watch Program will sample at a depth of approximately two feet (~2 ft.) or knee depth. The two-foot sampling depth will apply unless:

- The majority of recreational activity occurs at a depth significantly different than two feet. If this occurs samples may be collected at the location of greatest swimmer activity; or
- The two-foot sampling depth occurs more than 50 meters from shore. If the two-foot sampling depth occurs more than 50 meters from the shore, samples may be collected at 50 meters from shore or at the location of greatest swimmer activity. The distance shall be measured from the approximate water line at the time of sampling.

Sampling Schedule. Exhibit 1 lists the weeks when sampling will be conducted. Tuesday is the preferred sample collection day. Monday and Wednesday are alternate sample collection days. This schedule allows time for re-sampling to occur, before the next regular sampling period, when elevated bacteria levels are detected. Depending on the number of beaches and stations, local contractors may require several days to collect samples. Collection may occur over a three-day period; however, prior approval from the Beach Watch Coordinator is required.

III. LABORATORY TESTING

The Provider will analyze water samples for Enterococci bacteria using Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl-$-D-Glucoside Agar (mEI) July 2006 (https://www.epa.gov/sites/default/files/2015-08/documents/method_1600_2009.pdf) or the IDEXX Enterolert™ system. The local contractor or designated laboratory shall have a Quality Assurance/Quality Control (QA/QC) Plan. Plans approved by other entities (state/federal/commercial) and adopted by the Provider may be considered. Upon execution of this Contract, the Provider shall provide the GLO Beach Watch Coordinator with the name, address, phone and fax numbers, and point of contact (with e-mail) for the laboratory, if separate from the Provider.

IV. SAMPLING PROCEDURES

Equipment and Supplies. The following equipment and supplies will be necessary for the collection of water samples by the Provider:

- Insulated cooler for storage and transportation of the samples to the laboratory
- Thermometer
- Sample bottles – The bacteriological samples will be collected in polypropylene bottles at least 125 milliliters (ml) but no more than 1000 ml to allow for adequate sample mixing. Polypropylene bottles are recommended as they may be autoclaved and will keep sample costs down.
- Ice to keep samples cool
- Labels for sample bottles (Use waterproof adhesive labels.)
- Black indelible marker to label samples
- All paperwork including but not limited to Chain of Custody forms and Field Observation Forms (FOF) (Exhibit 2). Information collected on the FOF must be submitted electronically, once a month in a spreadsheet format supplied by the Beach Watch Coordinator.

Sample Collection Training. Trained individuals shall perform the collection of samples. A brief description of the training of the individuals must be provided to the Beach Watch Coordinator.

Sample Collection. One sample will be collected at each station. For every 10 stations sampled on any given day, a second sample must be collected at one of the stations as required by the QAPP. Samples shall be collected within arm's length of each other. Sample collection may be done side-by-side or concurrently. All water samples shall be collected as follows:

Step-by-Step Procedures for Local Contractors. The following procedures for sampling are based upon text taken from Part II, Section A, of the EPA publication "Microbiological Methods for Monitoring the Environment: Water and Wastes" EPA-600/8-78-017, December 1978.

1. Identify the sampling site on a chain of custody tag, if required, or on the bottle label and on a field log sheet.
2. Remove the bottle covering and closure just before obtaining each sample and protect them from contamination. Be careful not to touch the inside of the bottle itself or the inside of the cover.

3. The first sample to be prepared is the trip blank (at least one per sampling day for routine sampling is recommended). Open the sampling bottle and fill it with 100 ml of sterile buffered dilution solution when collecting freshwater, estuarine, or marine water samples. Cap the bottle and place it in a cooler. The trip blank will be used to verify samples have been maintained at the correct temperature for transportation.
4. To collect the water samples, carefully move to the first sampling location. If wading in the water, try to avoid kicking up bottom material at the sampling station. The sampler should be positioned downstream of any water current to take the sample from the incoming flow. Samples shall be collected in approximately two feet of water.
5. Open a sampling bottle, grasp it at the base with one hand, and plunge the bottle mouth downward at 90 degrees into the water to avoid introducing surface scum. Position the mouth of the bottle into the current away from the hand of the sampler. The sampling depth should be 15 to 30 centimeters (6 to 12 inches) below the water surface, depending on the depth from which the sample must be taken. Samples collected in less than the two-foot standing depth will collect the sample at the 15-centimeter (six inch) sampling depth to avoid the collection of sedimentation. Allow time for sediment settling prior to collecting the sample. If the water body is static, an artificial current can be created by moving the bottle horizontally with the direction of the bottle pointed away from the sampler. Tip the bottle slightly upward to allow air to exit and the bottle to fill.
6. Remove the bottle from the water body.
7. Pour out a small portion of the sample to allow an air space of 2.5 centimeters (1 to 2 inches) above each sample for proper mixing of the sample before analysis. [NOTE: If the bottle contains any debris, contaminants, or excessive sediment/sand, a new bottle must be used. Do not discard the water sample and refill the bottle.]
8. Tightly close the stopper and label the bottle.
9. Enter specific details to identify the sample on a permanent label. Take care in transcribing sampling information to the label. The label should be clean, waterproof, non-smearing, and large enough for the necessary information. The label must be securely attached to the sample bottle but removable when necessary. Preprinting standard information on the label can save time in the field. The marking pen or other device must be non-smearing and maintain a permanent legible mark.
10. Complete a Field Observation Form (FOF) for each beach to record the full details on sampling and other pertinent remarks, such as flooding, rain, or extreme temperature, that are relevant to interpretation of the results. This record also provides a back-up record of sample identification.
11. Place the samples in a suitable container and transport them to the laboratory as soon as possible. Adhering to sample preservation and holding time limits is critical to the production of valid data. Bacteriological samples should be iced or refrigerated at <10°C during transit to the laboratory. Use insulated containers such as plastic or Styrofoam coolers, if possible, to ensure proper maintenance of storage temperature. Take care to ensure sample bottles are not totally immersed in water during transit or storage. Process samples as soon as possible after collection. Do not hold samples longer than six hours between collection and initiation of analysis (US Environmental Protection Agency, 2000). Do not analyze samples that exceed holding time limits.
12. Collect water samples for analyses of other parameters in separate appropriate containers at the same time and perform analyses as specified in the methods.
13. After collecting samples from a station, wash hands and arms with alcohol wipes, a disinfectant lotion, or soap and water, and dry to reduce exposure to potentially harmful bacteria or other microorganisms.

Labeling the Samples. Each sample bottle shall be labeled with the following information:

- Date and time of sample collection
- Sampler's name
- Sample letters and station number as identified in Appendix C of the QAPP (identify the first sample with the letter "A" after the station number, the second sample with the letter "B" and so forth)

Delivery of Samples to the Laboratory. Upon completion of sample collection, the samples must be delivered to the designated laboratory for testing within 6 (six) hours of collection. During transport to the laboratory, all samples must remain in a cooler packed in ice. If necessary, additional ice may be added during the course of the sampling day.

Sampling Documentation. A FOF must be completed for each station. Multiple stations may be included on a single FOF if all the data is the same. A copy of a completed FOF must be provided to the designated laboratory (if different than the Provider). The Provider shall retain all FOFs. Data from the FOFs must be submitted electronically, once a month, in a spreadsheet format supplied by the Beach Watch Coordinator.

Other indicators to be noted on the FOF shall include:

- Dead fish, birds, or other animals on beach
- Number of people at the site
- Submerged debris in water (sargassum, dead fish, flood debris, etc.)
- Debris on beach (sargassum, algae, flood debris, trash, tar balls.)
- Water color and water odor
- Longshore current (speed and direction)

V. PUBLIC NOTICE/ISSUING ADVISORIES

Determining Bacteria Levels. One sample will be collected at each station and will be used to determine when an advisory shall be recommended. Where two samples are collected at a station as required in the QAPP for QA/QC purposes, the average of the two samples shall be used.

Recommending/Issuing Advisories. If the average of the one (or two) samples exceeds the Single Sample Maximum Density value of 104 cfu/100ml, an advisory shall be recommended to the local government contact(s). Sampling shall continue daily until the values are back below the standard. This includes weekends and summer holidays.

Public Advisory. If the Provider is a local government, the local government will be responsible for issuing a public advisory and advisory signs must be posted. Failure to post the signs will result in immediate termination of the contract.

If the Provider is not a local government, the GLO will notify the local government. The Provider may post the advisories signs if authorized by the local government.

VI. DATA ENTRY

The Provider through the Beach Watch Program's data entry website (https://s3.glo.texas.gov/beaches2009/login.cfm) must submit sampling results. Data must be entered into the website within one hour of receiving the results. Only extenuating circumstances such as power outage or Internet connectivity problems will preclude this requirement. If extenuating circumstances occur that preclude entering the data within one hour, the Provider shall notify the Beach Watch Coordinator by any means possible.

VII. DELIVERABLES

1. Budget breakdown by category
   Due Date: 09/30/2023

2. Review Sign and Return QAPP
   Due Date: 10/31/2023
3. Inventory of signs. Include location and photos
   Due Date: 11/31/2023
4. Reimbursement requests
   Due Date: Monthly
5. Field Observation Forms
   Due Date: Monthly

VIII. SPECIAL CONDITIONS

1. This project must be completed as described in this work plan.
2. The GLO must approve any changes in the scope of work and budget requests that change the total project cost.
3. GLO and Texas Beach Watch logos, must be printed on education/outreach materials, signs, and clothing when referencing information from the Texas Beach Watch program.
4. The contractor must coordinate with the GLO prior to issuing press releases, conducting media events, or otherwise engaging in any media related communications for this project.

EXHIBIT 1

Sampling Schedule

Sampling Schedule

September 1, 2023 through August 31, 2024

Sample Week	Sample	Event #		Sample Week	Sample	Event #
09/04/2023	Yes	1		03/04/2024	Yes	17
09/11/2023	Yes	2		03/11/2024	Yes	18
09/18/2023	Yes	3		03/18/2024	Yes	19
09/25/2023	Yes	4		03/25/2024	Yes	20
10/02/2023	Yes	5		04/01/2024	No	
10/09/2023	Yes	6		04/08/2024	Yes	21
10/16/2023	No			04/15/2024	No	
10/23/2023	Yes	7		04/22/2024	Yes	22
10/30/2023	No			04/29/2024	Yes	23
11/06/2023	Yes	8		05/06/2024	Yes	24
11/13/2023	N0			05/13/2024	Yes	25
11/20/2023	Yes	9		05/20/2024	Yes	26
11/27/2023	No			05/27/2024	Yes	27
12/04/2023	Yes	10		06/03/2024	Yes	28
12/11/2023	No			06/10/2024	Yes	29
12/20/2023	Yes	11		06/17/2024	Yes	30
12/25/2023	No			06/24/2024	Yes	31
01/01/2024	Yes	12		07/01/2024	Yes	32
01/08/2024	No			07/08/2024	Yes	33
01/15/2024	Yes	13		07/15/2024	Yes	34
01/22/2024	No			07/22/2024	Yes	35
01/29/2024	Yes	14		07/29/2024	Yes	36
02/05/2024	No			08/05/2024	Yes	37
02/12/2024	Yes	15		08/12/2024	Yes	38
02/19/2024	No			08/19/2024	Yes	39
02/26/2024	Yes	16		08/26/2024	Yes	40

EXHIBIT 2

Field Observation Form

Texas BEACH WATCH .com TEXAS GENERAL LAND OFFICE

FIELD OBSERVATION FORM

Date: ____/____/____

Field Technician: _____

Laboratory Recipient: _____

Start Time		Time Delivered	
End Time		Delivery Temperature	

KEY

Water Surface: **1**-Calm **2**-Ripples **3**-Chop **4**-Swells **5**-Other

Clarity: **1**-Clear **2**-Cloudy **3**-Turbid

Water Color: **1**-Md. Brown **2**-Dk Brown **3**-Red Brown **4**-Green Brown **5**-Yellow Brown **6**-Blue Green **7**-Blue

Tide: **1**-High **2**-Low **3**-Ebb **4**-Flood **5**-Other

Trash: **1-**Light **2-**Medium **3-**Heavy **0-**None

Smell: **1**-Sewage **2**-Oily **3**-Fishy **4**-Rotten Egg **5**-Other **0**-None

Debris: **1**- Shells **2**-Dead Fish **3**-Dead Crabs **4**-Other(See Comments) **0**-None

Sargassum: **1**-Light **2**-Medium **3**-Heavy **0**-None

Algae/Seaweed: **1**-Light **2**-Medium **3**-Heavy **0**-None

Rip Current: **1**-Advisory **0**- No Advisory (See Lifeguard Flags)

Field Observation Form

KEY

Water Surface: ❶ Calm ❷ Ripples ❸ Chop ❹ Swells ❺ Other
Clarity: ❶ Clear ❷ Cloudy ❸ Turbid
Water Color: ❶ Md. Brown ❷ D. Brown ❸ Red Brown ❹ Green Brown ❺ Yellow Brown ❻ Blue Green 7. Other
Tide: ❶ High ❷ Low ❸ Ebb ❹ Flood ❺ Other
Trash: ❶ Light ❷ Medium ❸ Heavy ❹ None

Smell: ❶ Sewage ❷ Oily ❸ Fishy ❹ Rotten Egg ❺ Other ❻ None
Debris: ❶ Shells ❷ Dead Fish ❸ Dead Crabs ❹ Other (See comments) ❺ None
Sargassum: ❶ Light ❷ Medium ❸ Heavy ❹ None
Rip Current: ❶ Advisory ❷ No Advisory (See Life guard flags)
Algae/Seaweed: ❶ Light ❷ Medium ❸ Heavy ❹ None

SAMPLE SITE
BEACH SEGMENT ID
TIME COLLECTED
COLLECTION DEPTH
START TIME
ENTERO RESULTS cfu / 100mL
END TIME
☐ ReSample ☐ DUP

OBSERVATIONS

SIGNAGE PRESENT ☐ NO ☐ YES SIGNAGE CORRECT ☐ NO ☐ YES

BEACH DEBRIS	#	PEOPLE	#	WEATHER		WATER TEMP	°F
ALG/SWD	#	DOGS	#	AIR TEMP	°F	SALINITY	ppt
SARGASSUM	#	BIRDS	#	WIND DIR		TURBIDITY	NTU
CRAB	#	JELLYFISH	#	WIND SPD		**RAINFALL**	
FISH	#	SMELL	#	WATER SURF		24 HRS	
TRASH	#	RIP CUR	#	TIDE		3 DAYS	
				WATER COLOR		7 DAYS	
				CLARITY			

COMMENTS

SAMPLE SITE
BEACH SEGMENT ID
TIME COLLECTED
COLLECTION DEPTH
START TIME
ENTERO RESULTS cfu / 100mL
END TIME
☐ ReSample ☐ DUP

OBSERVATIONS

SIGNAGE PRESENT ☐ NO ☐ YES SIGNAGE CORRECT ☐ NO ☐ YES

BEACH DEBRIS	#	PEOPLE	#	WEATHER		WATER TEMP	°F
ALG/SWD	#	DOGS	#	AIR TEMP	°F	SALINITY	ppt
SARGASSUM	#	BIRDS	#	WIND DIR		TURBIDITY	NTU
CRAB	#	JELLYFISH	#	WIND SPD		**RAINFALL**	
FISH	#	SMELL	#	WATER SURF		24 HRS	
TRASH	#	RIP CUR	#	TIDE		3 DAYS	
				WATER COLOR		7 DAYS	
				CLARITY			

COMMENTS

SAMPLE SITE
BEACH SEGMENT ID
TIME COLLECTED
COLLECTION DEPTH
START TIME
ENTERO RESULTS cfu / 100mL
END TIME
☐ ReSample ☐ DUP

OBSERVATIONS

SIGNAGE PRESENT ☐ NO ☐ YES SIGNAGE CORRECT ☐ NO ☐ YES

BEACH DEBRIS	#	PEOPLE	#	WEATHER		WATER TEMP	°F
ALG/SWD	#	DOGS	#	AIR TEMP	°F	SALINITY	ppt
SARGASSUM	#	BIRDS	#	WIND DIR		TURBIDITY	NTU
CRAB	#	JELLYFISH	#	WIND SPD		**RAINFALL**	
FISH	#	SMELL	#	WATER SURF		24 HRS	
TRASH	#	RIP CUR	#	TIDE		3 DAYS	
				WATER COLOR		7 DAYS	
				CLARITY			

COMMENTS