Agenda # 3c

April 29, 2021

JoAnna P. "Jody" Weaver, P.E.
City Engineer/Community and Economic Development
City of Port Lavaca
202 N. Virginia St.
Port Lavaca, Texas 77979

Subject: Report - Limited Phase II Environmental Site Assessment
Harbor of Refuge
Port Lavaca, Texas

Dear Ms. Weaver:

CRG Texas Environmental Services, Inc. (CRG Texas) is pleased to present this summary report detaining the observations and findings from the recent limited Phase II Environmental Site Assessment (ESA) conducted at the above-mentioned site. The limited Phase II included the installation of several 4 near surface soil borings and conversion of two of those borings to temporary groundwater monitoring wells (TMWs), collection of soil and groundwater samples for laboratory chemical analysis, and preparation of a Phase II ESA report. This effort was implemented to further evaluate minor exceedances of soil-to-groundwater transfer protective concentration levels (PCLs) documented during a recent Phase I ESA conducted on the property.

SCOPE OF WORK

Soil Boring Installation

Prior to Mobilization, a 48-hour utility locate notification will be submitted to Lonestar Locators, One Call, or Digg Tess as required by law. A total of four (4) soil borings were installed using a direct-push drilling rig at locations identified proximal to the sampling locations conducted during the recently completed Phase I ESA. The soil borings were advanced to a depth of 20 feet below grade. Groundwater was encountered in all 4 borings at depths of 7-12.5 feet below grade. A Texas-Licensed Water Well Driller performed all boring related activities under the supervision of a Texas-licensed Professional Geoscientist.

Soil and Groundwater Sampling

Soil samples recovered from each soil boring were continuously screened for odors and staining, and organic vapor concentrations were measured using an portable photoionization detector (PID). Samples were collected from each soil boring for laboratory chemical analyses as follows.

- Soil samples were collected at an approximate depth of 5 ft below grade, and from the highest observed PID response or the apparent capillary fringe (typically 10-12.5 ft) just above the soil-groundwater interface.
- Two borings were converted to temporary monitoring wells from which groundwater samples were collected.

Laboratory Chemical Analysis

Soil and groundwater samples were analyzed for the listed analytes as presented below:

- Total petroleum hydrocarbons (TPH) by Texas Method 1005;
- Volatile organic compounds (VOCs) by Method 8260;
- Metals by EPA Method 6010/6020/7471 as appropriate for the specific sample locations;
- If TPH is detected in the soil or groundwater samples, the soil and/or groundwater sample with the highest TPH concentration will be analyzed for poly-aromatic hydrocarbons (PAHs) by EPA Method 8270C or TPH speciation by Method TX 1006;
- Depending on the initial metals results, the samples may be further analyzed for by Synthetic Precipitation Leaching Procedures to determine the potential for soil-to-groundwater transfer of specific analytes; and,
- Given the proximity to the coast, groundwater samples were also analyzed for chlorides and total dissolved solids. This data will be useful in determining the site groundwater classification in the event that groundwater impacts are identified.

Observations

Soil cores collected from the 4 sample locations generally appeared as "native" soil except for a small interval (approximately 1 ft) in boring SB-3 where some plastic material was observed at an approximate depth of 8 feet. There was a slight odor and an anomalous organic vapor reading (26.1 units) was detected in that interval as well. A sample was collected from that interval. None of the remaining borings penetrated readily apparent "landfill" debris.

Although it appeared that some surface clean-up had been performed since our initial visit, there are still numerous, poorly labeled containers (i.e., 55-gallon or smaller) containing indeterminate liquids. These are assumed to be petroleum-based lubricants and oils based on field observations (i.e., slight petroleum odors / staining, etc.).

Findings from the original surface sampling indicate the presence petroleum hydrocarbons and select metals (arsenic, barium and lead) at concentrations exceeding TCEQ's soil-to-groundwater transfer protective concentration levels (PCLs).

Reporting

Upon receipt of the analytical results, a summary report will be completed and submitted electronically to you. The analytical results will be compared to regulatory standards established by the Texas Commission on Environmental Quality (TCEQ) to include Tier 1 protective concentration levels (PCLs) or calculated Tier 2 or 3 PCLs as may be appropriate for the detected inorganic analytes. The report will include:

- Site Map
- Soil Data and Analytical Summary
- Groundwater Monitoring Well Analytical Summary
- Chain of Custody and Field Reports

- Laboratory Analytical Results
- Tier 2 Metals / TPH PCL Calculations
- Recommendations for Follow-on Actions as needed

We appreciate the opportunity to provide Environmental Services to you.

Cordially,

John I. Hogue, P.G., CHMM, LPST-PM
Senior Environmental Scientist
CRG Texas Environmental Services, Inc.

Attachments:
Site Map
Photo Log
Boring Log
Summary of Detected Analytical Results (to date)

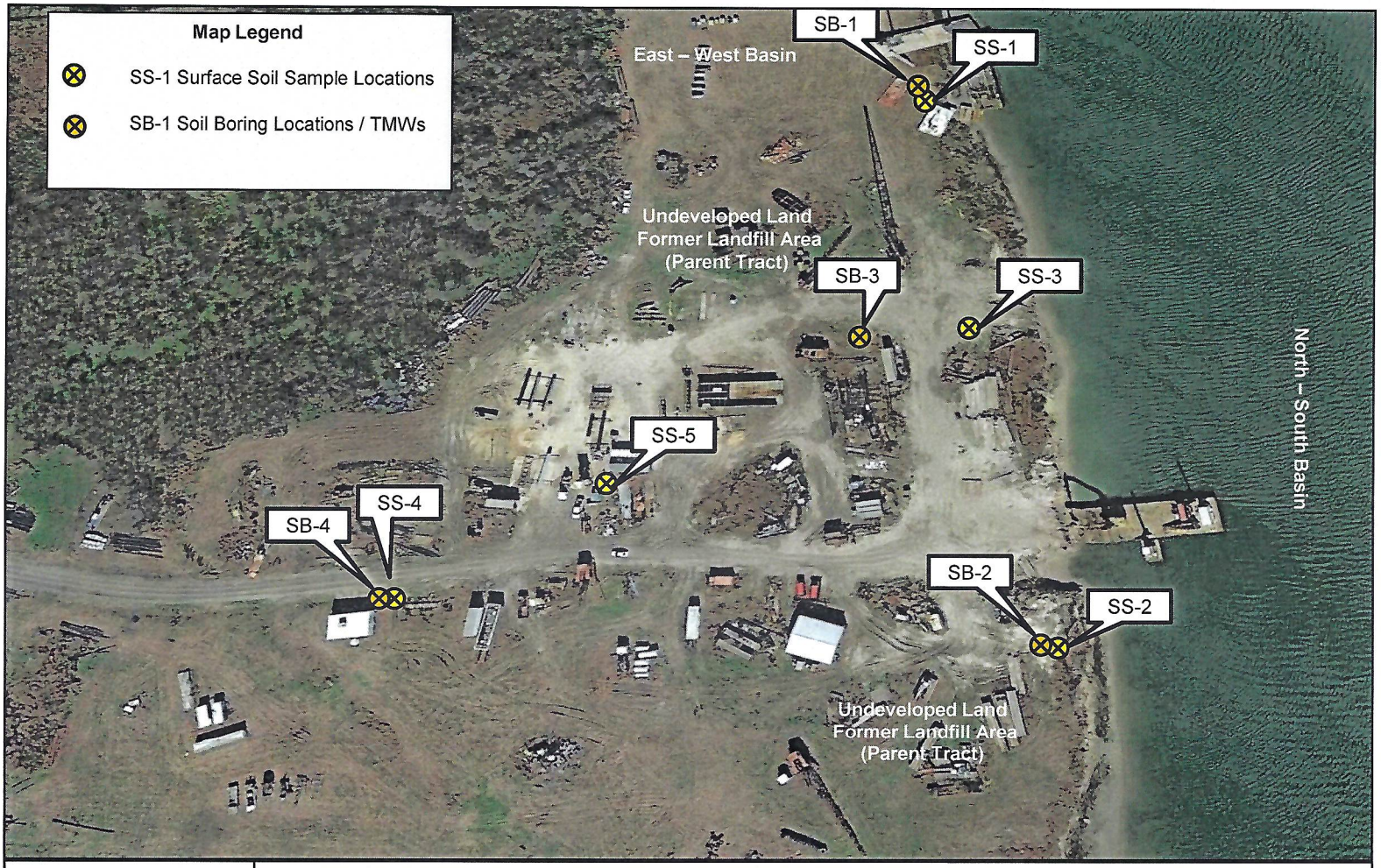

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Figure 2 – Site Map Not to Scale

Modified Phase I ESA
Harbor of Refuge Tracts 16, 17, and 17A (26.66 acres)
FM 1090 South, Port Lavaca, Calhoun County, Texas, 77979
Project Number #21-052

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Boring / Well ID: SB-1

Location: See Map
"Shipwreck"

BORING LOG

CLIENT	City of Port Lavaca - JoAnna P "Jody" Weaver	**PROJECT #**	21-052
PROJECT	Limited Phase II ESA - Harbor of Refuge	**DRILLING CONTRACTOR:**	Enviro Tech Drilling
ADDRESS	Port Lavaca, Texas	**DRILLER:**	Ricardo Gonz
START DATE	Thursday, April 22, 2021	**DRILLING METHOD:**	Geo-Probe
FINISH DATE	Thursday, April 22, 2021	**LOGGED BY:**	Camilo Cardenas/ John Hogue

DEPTH		SAMPLE DESCRIPTION	USCS	PID	COMMENTS
	0-2'5"	Clay, orange with brown (organic) pieces, firm, dry no odor	CL	0.2	
5	2.5-5'	Clay, orange, white rock fragments, graded to clay, dark gray at 3' , increasing softness with depth to 7', no odor	CL	0.1	
10	7'-10'	Sand, silt/clay, brown, saturated, soft, no odor	SC	0.5	
	10-12.5'	Sand, silt/clay, brown, saturated, soft, no odor	SC	0.1	
15	12.5-15'	Sand, silt/clay, brown, saturated, med firm, no odor	SC	0.1	
	15-17.5'	Sand, silt/clay, brown, saturated, med firm, no odor	SC	0.1	
20	17.5-20'	Clay at 19' orange/ brown, dry, firm to stiff at 20' no odor	CH	0.1	
25					
30					
35					
40					

Notes / Observations:
* No landfill debris encountered
* Boring terminated at 20'

Samples Collected:
*SB-1 (2.5-5') 1135
*SB-1 (12.5-15') 1145

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Depths are in feet below grade

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Boring / Well ID: SB-2

Location: See Map

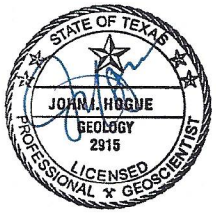
BORING LOG

CLIENT	City of Port Lavaca - JoAnna P "Jody" Weaver	**PROJECT #**	21-052
PROJECT	Limited Phase II ESA - Harbor of Refuge	**DRILLING CONTRACTOR:**	Enviro Tech Drilling
ADDRESS	Port Lavaca, Texas	**DRILLER:**	Ricardo Gonz
START DATE	Thursday, April 22, 2021	**DRILLING METHOD:**	Geo-Probe
FINISH DATE	Thursday, April 22, 2021	**LOGGED BY:**	Camilo Cardenas/ John Hogue

DEPTH		SAMPLE DESCRIPTION	USCS	PID	COMMENTS
	0-2'5"	Clay, dark gray to almost black, dry, very firm, some white mottling, moist, soft, no odor	CH	0.2	
5	2.5-5'	Clay, dark gray to almost black, dry, very firm, some white mottling, moist, soft, no odor	CH	0.1	
	5'-7.5'	Clay, dark gray to almost black, dry, very firm, some white mottling, moist, stiff, no odor	CH	0.1	
10	7.5-10'	Clay, dark gray to almost black, dry, very firm, some white mottling, moist, stiff, no odor	CH	0.1	
	10'-12.5'	Silty sand, some clay, light gray, soft, saturated, med firm, no odor	SC	0.2	
15	12.5'-15'	Silty sand, some clay, light gray, soft, saturated, med firm, no odor	SC	0.1	
	15'-17.5'	Clay, tab with orange mottling, very firm, dry, some minor rock fragments, no odor	CH	0	
20	17.5'-20'	Clay, tab with orange mottling, very firm, dry, some minor rock fragments, no odor	CH	0.1	
25					
30					
35					
40					

Notes / Observations:
* No landfill debris encountered at final depth
* Boring terminated at 20'

Samples Collected:
*SB-2 (2.5-5') 1240
*SB-2 (10 - 12.5') 1250



Depths are in feet below grade

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Boring / Well ID: SB-3

Location: See Map

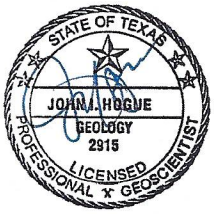
BORING LOG

CLIENT	City of Port Lavaca - JoAnna P "Jody" Weaver	**PROJECT #**	21-052
PROJECT	Limited Phase II ESA - Harbor of Refuge	**DRILLING CONTRACTOR:**	Enviro Tech Drilling
ADDRESS	Port Lavaca, Texas	**DRILLER:**	Ricardo Gonz
START DATE	Thursday, April 22, 2021	**DRILLING METHOD:**	Geo-Probe
FINISH DATE	Thursday, April 22, 2021	**LOGGED BY:**	Camilo Cardenas/ John Hogue

DEPTH		SAMPLE DESCRIPTION	USCS	PID	COMMENTS
	0-2.5'	Clay, gray to tan, med firm, moist, no odor	CL	2.1	
5	2.5-5'	Clay, dark gay with white mottling, wood seam at 4' med firm, moist	CL	2.2	
	5'-7.5'	No recovery	NA	NA	
10	7.5'-10'	Clay, silt, dark gray, landfill like debris at 8' plastic, med firm, moist, slight unknown odor	CL	26.1	
	10'-12.5'	Sand, silty clay, gray, to tan, saturated, soft, no odor	SC	7.1	
15	12.5'-15'	Sand, silty clay, gray, to tan, saturated, soft, no odor	SC	7	
	15'-17.5'	Clay, tan, with orange/ white mottling, very firm, dry, no odor	CH	0.3	
20	17.5'-20'	Clay, tan, with orange/ white mottling, very firm, dry, no odor	CH	0.1	
25					
30					
35					
40					

Notes / Observations:
*Landfill like debris encountered at approximately 8'
* Boring terminated at 20'

Samples Collected:
*SB-3 (2.5-5') 1035
*SB-3 (7.5-10') 1045
*SB-3 (GW) 1055



Depths are in feet below grade

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Boring / Well ID: SB-4

Location: See Map

BORING LOG

CLIENT	City of Port Lavaca - JoAnna P "Jody" Weaver	PROJECT #	21-052
PROJECT	Limited Phase II ESA - Harbor of Refuge	DRILLING CONTRACTOR:	Enviro Tech Drilling
ADDRESS	Port Lavaca, Texas	DRILLER:	Ricardo Gonz
START DATE	Thursday, April 22, 2021	DRILLING METHOD:	Geo-Probe
FINISH DATE	Thursday, April 22, 2021	LOGGED BY:	Camilo Cardenas/ John Hogue

DEPTH		SAMPLE DESCRIPTION	USCS	PID	COMMENTS
	0-2.5'	Clay, dark gray to black, very firm, firm, dry, no odor	CL	0.2	
5	2.5-5'	Clay, dark gray to black, firm, dry, no odor	CL	0.1	
	5'-7.5'	Clay, tan, very firm, dry (some organic material).	CL	0.1	
10	7.5'-10'	Clay, dark gray, firm, dry, no odor	CL	0	
	10'-12.5'	Clay, dark gray, firm, dry, no odor	CL	0.1	
15	12.5'-15'	Sand with silty clay, tan, very soft, saturated, no odor	SC	0.1	
	15'-17.5'	Sand with silty clay, tan, very soft, saturated, no odor	SC	0	
20	17.5'-20'	Clay, orange, tan, very firm, dry	CH	0	
25					
30					
35					
40					

Notes / Observations:
* No landfill debris encountered
* Boring terminated at 20'

Samples Collected:
*SB-4 (2.5'-5') 1325
*SB-4 (7.5'-10') 1335
*SB-4 (GW) 1345

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No. 1 View of SB-1 location at the north side of the site.

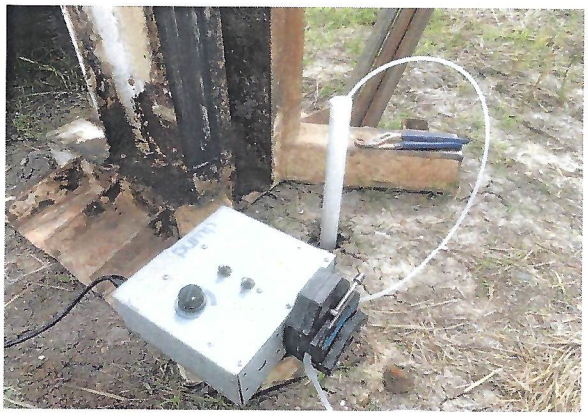
No. 2 View of soil recovered from SB-1 for soil screening, logging, and sampling.

No. 3 View of SB-2 location at the south side of the site.

No. 4 View of soil recovered from SB-2 for soil screening, logging, and sampling.

No. 5 View of SB-3 location at the north central portion of the site.

No. 6 View of soil logging for SB-3 location.



No. 7 View of temporary well at SB-3 for groundwater sample collection.

No. 8 View of SB-4 location at the west side of the site.