LOG OF BORING AND TEST RESULTS

EUSTIS ENGINEERING SINCE 1946

Ducks Unlimited, Inc.
Pierce Marsh Beneficial Use
Marsh Creation
Phase 1
North of West Bay Near Galveston Island
Galveston County, Texas

Boring: B-2

Project No: H0048
Date: 07/17/2022
Latitude: 29.30847°
Longitude: -94.96260°

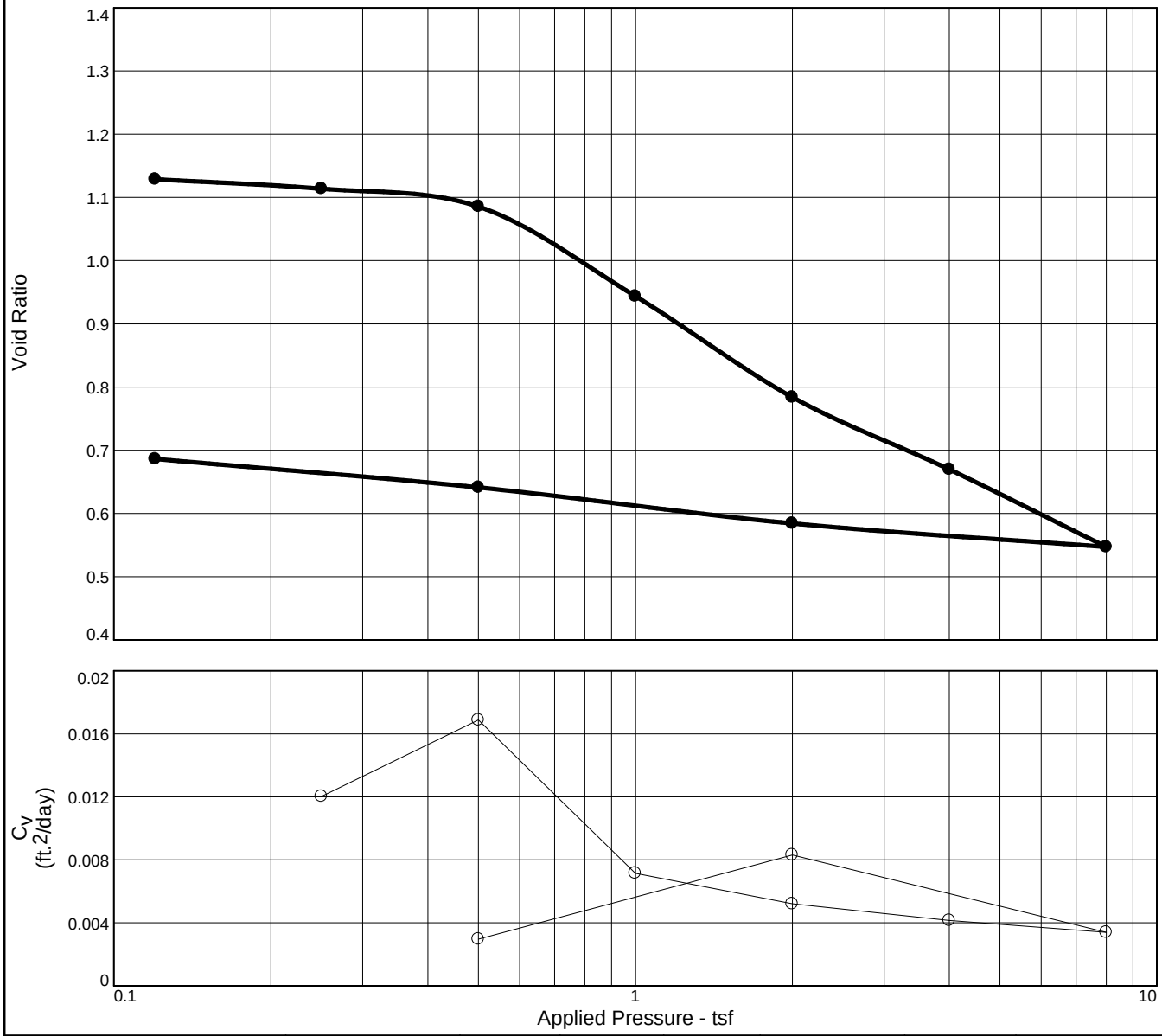
Water Depth: See Text
Total Depth: 40.0 ft

Scale in Feet	PP	SPT	S P L R	Symbol	Visual Classification	USC	Sample Number	Depth in Feet	Water Content %	Density Dry pcf	Density Wet pcf	Shear Tests Type	Shear Tests ϕ	Shear Tests C psf	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI		Other Tests
0					Moist, soft gray LEAN CLAY w/few fine sand pockets	CL	1A	0	43										
							1B	1	49										
	0.25				Moist, very soft to soft gray & tan FAT CLAY w/few fine sand pockets & concretions	CL	2A	2	36										
	0.50						2B	3	29	93	120	OB	0	239					
							3A	4	33										
5	0.25				Moist, soft gray LEAN CLAY w/few concretions	CL	3B	5	37						70	19	51		CON
							4A	6	35										
	0.25				Moist, soft gray LEAN CLAY w/few fine sand pockets	CL	4B	7	36	85	116	OB	0	74					
							5A	8	41										
	0.25						5B	9	34						43	16	27		
10							6A	10	35										
	1.00						6B	11	35										
							7A	12	24										
	1.00				Moist, stiff to very stiff gray, reddish-tan & brown FAT CLAY w/trace of fine sand & concretions	CH	7B	13	25	102	127	OB	0	2131					
							8A	14	25										
15	2.00						8B	15	26						66	20	46		
							9A	16	28										
	2.00						9B	17	28										
							10A	18	25										
	2.00				Moist, stiff reddish-tan FAT CLAY w/few fine sand pockets & lenses	CH	10B	19	26	99	125	OB	0	1008					
20																			
							11A	23	31										
	1.00				Moist, stiff reddish-brown FAT CLAY w/trace of fine sand pockets	CH	11B	24	31										
25																			
							12A	28	23										
	1.00				Moist, stiff tan & gray fine SANDY LEAN CLAY w/few concretions	CL	12B	29	23	101	124	OB	0	1077					
30																			
							13A	33	24										
	0.50						13B	34	27						37	20	17		
35																			
							14A	38	27										
	0.50						14B	39	31	92	120	OB	0	797					
40					Moist, medium stiff reddish-brown & gray fine SANDY LEAN CLAY	CL													
45																			
50																			

EUSTIS_GINT_LIBRARY_4-18-2022.GLB EE STANDARD BORING LOG H0048.GPJ 8/18/22

NOTES: Boring 2 was drilled in 1 ft. of water

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	P_c (tsf)	C_c	Initial Void Ratio
Saturation	Moisture							
98.1 %	40.9 %	79.6	70	51	2.72	0.6	0.57	1.133

MATERIAL DESCRIPTION	USCS	AASHTO
M, so g FT CL w/ tr si	CH	

Project No. H0048 **Client:** DUCKS UNLIMITED, INC., RICHMOND, TEXAS

Project: DUCKS UNLIMITED, INC. - PIERCE MARSH BENEFICIAL USE MARSH CREATION, PHASES 1 AND 2,

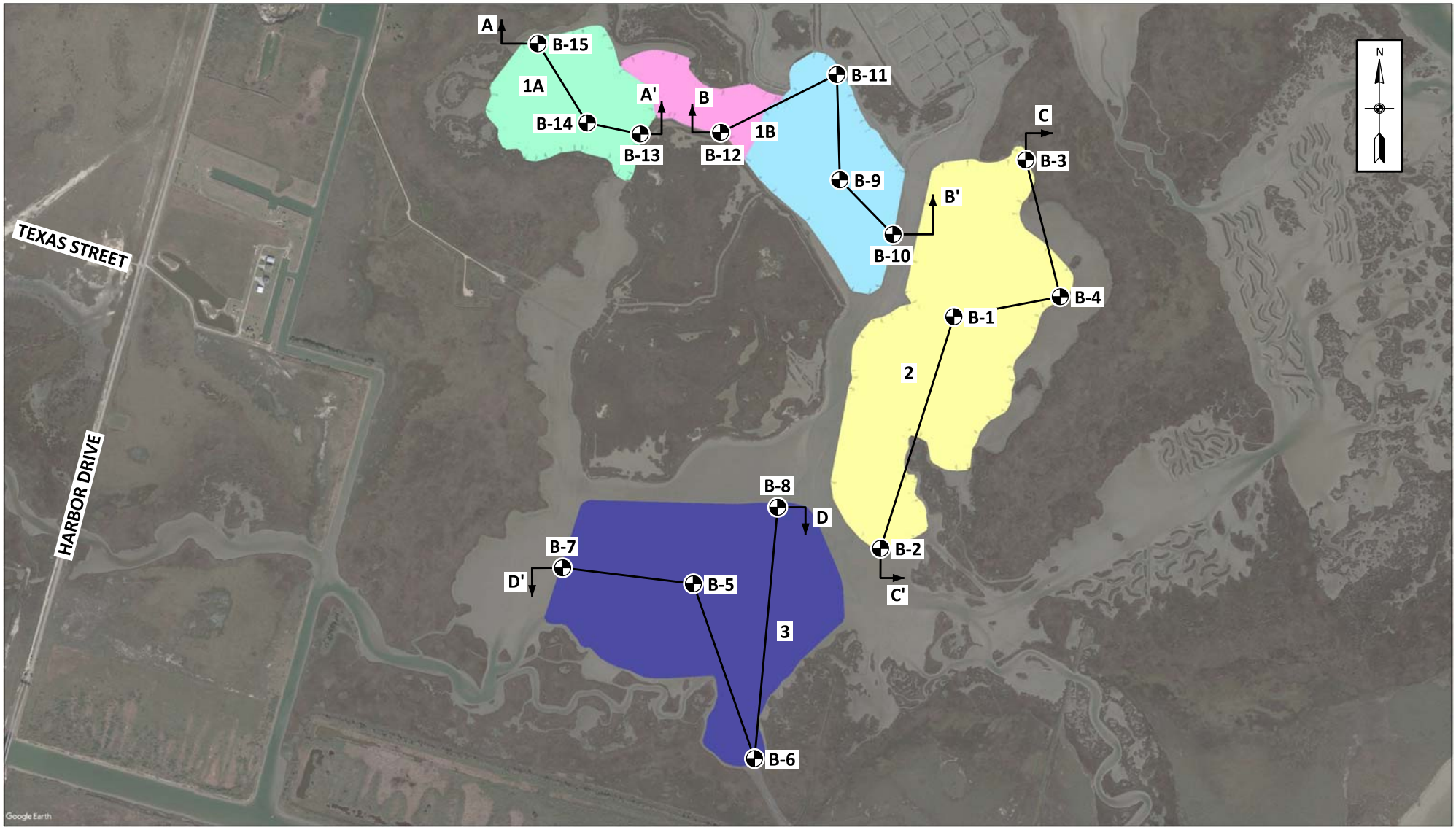
Source of Sample: B-2 **Depth:** 5 **Sample Number:** 3B

Remarks:

EUSTIS ENGINEERING SINCE 1946

Figure

Tested By: BH **Checked By:** RR



SATELLITE IMAGERY DATED: JANUARY 2022

NOT TO SCALE

◓ DENOTES APPROXIMATE LOCATIONS OF SOIL BORINGS DRILLED BETWEEN 11 AND 18 JULY 2022

BORING LOCATION PLAN

PHASE 1
DUCKS UNLIMITED, INC.
PIERCE MARSH BENEFICIAL USE MARSH CREATION
NORTH OF WEST BAY NEAR GALVESTON ISLAND
GALVESTON COUNTY, TEXAS
DU CONTRACT NO. TX-0-2
DU PROJECT NO. TX-194-4
DU TASK ORDER NO. 1

EUSTIS ENGINEERING L.L.C. SINCE 1946

DRAWN BY: S.T.S.	JOB NO.: H0048
CHECKED BY: H.C.W.	DATE: 15 AUG 2022
CADD FILE: LOCATION PLAN.DGN	FIGURE 2

C

B-3
G.S.E. -0.41
16 JUL 2022

B-4
G.S.E. 1.06
16 JUL 2022

B-1
G.S.E. -0.77
16 JUL 2022

B-2
G.S.E. -1.12
17 JUL 2022

C'

ELEVATION IN FEET (NAVD 88)

10
0
-10
-20
-30
-40
-50
-60

BORING MATERIAL GRAPHICS

FAT CLAY

LEAN CLAY

NOTE:

1. G.S.E. = GROUND SURFACE ELEVATION

SUBSURFACE SOIL PROFILE
MCA-2
PHASE 1
DUCKS UNLIMITED, INC.
PIERCE MARSH BENEFICIAL USE MARSH CREATION
NORTH OF WEST BAY NEAR GALVESTON ISLAND
GALVESTON COUNTY, TEXAS
DU CONTRACT NO. TX-0-2
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EUSTIS ENGINEERING L.L.C. SINCE 1946

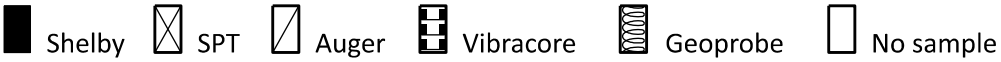
DRAWN BY: S.T.S.	JOB NO.: H0048
CHECKED BY: H.C.W.	DATE: 23 AUG 2022
CADD FILE: PROFILE.DGN	FIGURE 3 (SHEET 3 OF 4)

EUSTIS ENGINEERING SINCE 1946

LEGEND AND NOTES FOR LOG OF BORING AND TEST RESULTS

PP Pocket penetrometer: Resistance in tons per square foot

SPT Standard Penetration Test: Number of blows of a 140-lb hammer dropped 30 inches required to drive 2-in. O.D., 1.4-in. I.D. sampler a distance of 1 foot into the soil after first seating it 6 inches. Values shown have not been corrected.

SPLR Type of Sampling  Shelby, SPT, Auger, Vibracore, Geoprobe, No sample

SYMBOL Clay, Silt, Sand, Peat/Humus, Shells, Stone/Gravel

Predominant type shown heavy; modifying type shown light

USC Unified Soil Classification

DENSITY Unit weight in pounds per cubic foot

SHEAR TESTS

TYPE

- UC Unconfined compression shear
- OB Unconsolidated undrained triaxial compression shear on one specimen confined at the approximate overburden pressure
- UU Unconsolidated undrained triaxial compression shear
- ϕ Angle of internal friction in degrees
- c Cohesion in pounds per square foot

ATTERBERG LIMITS

- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index

OTHER TESTS

- CON Consolidation
- -#200 Percent passing a U.S. No. 200 sieve
- SV Particle size distribution (sieve only)
- PD Particle size distribution (sieve and hydrometer)
- k Coefficient of permeability in centimeters per second
- SP Swelling pressure in pounds per square foot

Other laboratory test results reported on separate figures

GENERAL NOTES

(1) If a ground water depth is shown on the boring log, these observations were made at the time of drilling and were measured below the existing ground surface. These observations are shown on the boring logs. However, ground water levels may vary due to seasonal fluctuations and other factors. If important to construction, the depth to ground water should be determined by those persons responsible for construction immediately prior to beginning work.

(2) While the individual logs of borings are considered to be representative of subsurface conditions at their respective locations on the dates shown, it is not warranted that they are representative of subsurface conditions at other locations and times.