EUSTIS ENGINEERING SINCE 1946

LOG OF BORING AND TEST RESULTS

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

Boring: B-7

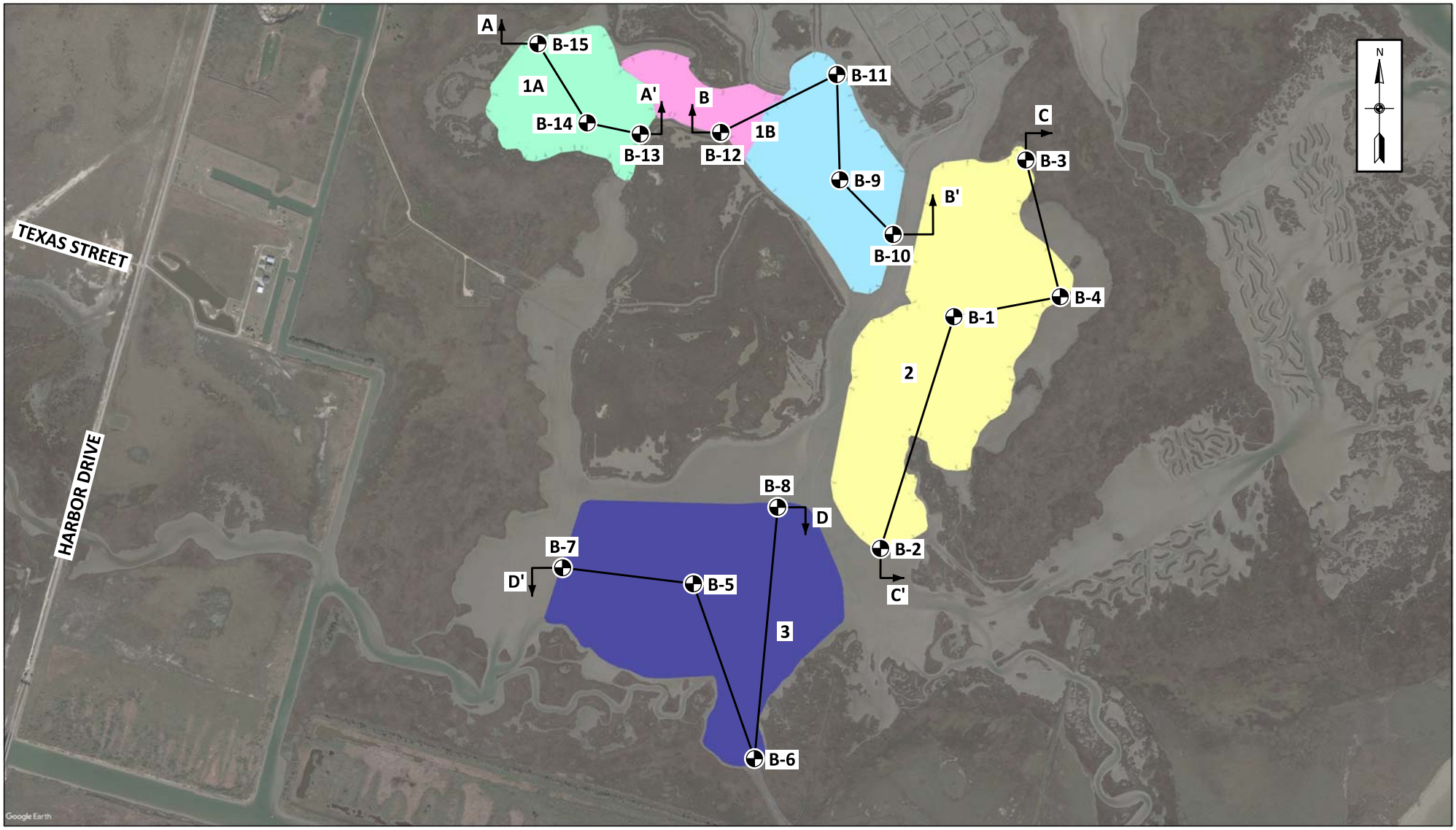
Project No: H0048
Date: 07/18/2022
Latitude: 29.30798°
Longitude: -94.97175°

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	1.00				Moist, soft gray & tan FAT CLAY w/few fine sand pockets	CH	1A	0	45										
							1B	1	35										
	1.00				Moist, stiff tan & light gray FAT CLAY w/few concretions	CH	2A	2	24						57	19	38		
							NS	3											
5	1.00						3A	4	23										
							3B	5	23										
	1.00						4A	6	30										
					w/trace of fine sand pockets & concretions		4B	7	27	97	124	OB	0	1211					
	1.00					CH	5A	8	28										
10					Moist, stiff gray & reddish-tan FAT CLAY w/trace of concretions		5B	9	26										
							6A	10	32										
	1.00				Moist, soft tan & gray FAT CLAY w/few gravel	CH	6B	11	29										
							7A	12	31										
	1.00				Moist, stiff reddish-tan FAT CLAY w/trace of fine sand pockets & concretions	CH	7B	13	30										
15							8A	14	26										
	1.00						8B	15	25						77	20	57		
					Moist, medium stiff tan & gray FAT CLAY w/few fine gravel	CH	9A	16	29	94	122	OB	0	282					
	1.00					CH	9B	17	33										
					Moist, soft reddish-tan & gray FAT CLAY w/few concretions		10A	18	33										
20	0.50						10B	19	34										
					Moist, soft tan FAT CLAY w/few fine sand pockets	CH	11A	23	23	104	128	OB	0	392					
	1.00					CH	11B	24	31										
25					Moist, medium stiff to stiff reddish-tan & gray FAT CLAY w/few fine sand pockets & lenses														
							12A	28	28										
	1.00						12B	29	27										
30					w/concretions														
							13A	33	30										
	1.00						13B	34	25	100	125	OB	0	1094					
35																			
							14A	38	31										
	0.50				Moist, medium stiff tan & gray LEAN CLAY	CL	14B	39	28						40	19	21		
40																			
45																			
50																			

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

NOTES: Boring 7 was drilled in 1 ft. of water.



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

D

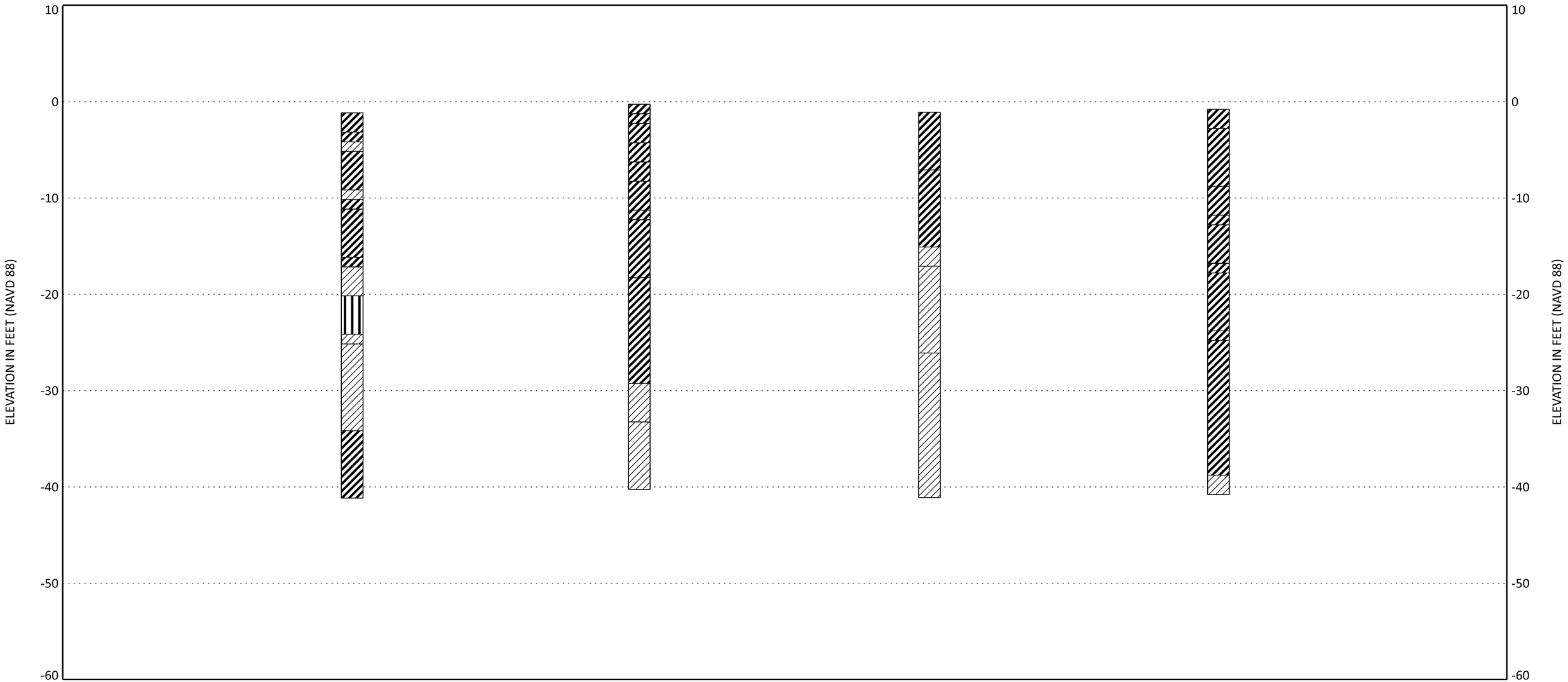
B-8
G.S.E. -1.16
17 JUL 2022

B-6
G.S.E. -0.26
17 JUL 2022

B-5
G.S.E. -1.09
18 JUL 2022

B-7
G.S.E. -0.79
18 JUL 2022

D'



BORING MATERIAL GRAPHICS

- FAT CLAY
- SILT
- LEAN CLAY

NOTE:

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

SUBSURFACE SOIL PROFILE
MCA-3
PHASE 1
DUCKS UNLIMITED, INC.
PIERCE MARSH BENEFICIAL USE MARSH CREATION
NORTH OF WEST BAY NEAR GALVESTON ISLAND
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EUSTIS ENGINEERING L.L.C. SINCE 1946

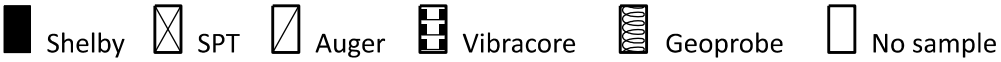
DRAWN BY: S.T.S.	JOB NO.: H0048
CHECKED BY: H.C.W.	DATE: 23 AUG 2022
CADD FILE: PROFILE.DGN	FIGURE 3 (SHEET 4 OF 4)

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.