



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°0'02.72" W 94°5'21.14"	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
				SURFACE EL.: Not Available		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
												0.5	1.0	1.5	2.0	2.5
			5	FILL: SAND, very loose to loose, with shell fragments												
5			2	- with clay pockets, 4.5' to 8'												
			2													
			2													
10																
			WOH	FILL: SANDY CLAY, very soft, greenish gray, with sand seams and shell fragments	12.0		62		34	14	20					
15																
			2													
20																
			1	CLAY, very soft, olive gray	23.5		90		100	26	74					
25																
			47	SILTY SAND, medium dense to dense, greenish gray, with shell fragments	27.0											
30																
			11	- with clay pockets and seams below 38'												
35																

NOTES:

1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes.
2. WOH: Weight of Hammer.
3. NR: Not Recorded.
4. Boring coordinates were obtained with a hand-held GPS device.
5. Terms and symbols are presented on Plates D-9a and D-9b.

DATE: May 4, 2017

TOTAL DEPTH: 400'

CAVED DEPTH: Not Applicable

DRY AUGER: Surface to 6'

WET ROTARY: 6' to 400'

BACKFILL: Cement-Bentonite Grout

LOGGER: E. Schulak

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LOG OF BORING NO. BH-03

STORM SURGE SUPPRESSION STUDY - GCCPRD

BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS

PLATE D-3a



DEPTH, FT	WATER LEVEL SYMBOL SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°0'02.72" W 94°5'21.14"	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
			SURFACE EL.: Not Available		UNIT DRY WT, PCF	PASSING NO: 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
											0.5	1.0	1.5	2.0	2.5
45		13	SILTY SAND, loose to medium dense, greenish gray, with shell fragments, clay pockets and seams	52.0	15										
50		9													
55		WOH	CLAY, very soft to soft, olive gray, with shell fragments - with sand seams to 68'	52.0	65	85	56	95	21	74					
60		3													
65			- firm, 63' to 108'	52.0											
70															
75															

NOTES:

1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes.
2. WOH: Weight of Hammer.
3. NR: Not Recorded.
4. Boring coordinates were obtained with a hand-held GPS device.
5. Terms and symbols are presented on Plates D-9a and D-9b.

DATE: May 4, 2017

TOTAL DEPTH: 400'

CAVED DEPTH: Not Applicable

DRY AUGER: Surface to 6'

WET ROTARY: 6' to 400'

BACKFILL: Cement-Bentonite Grout

LOGGER: E. Schulak

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LOG OF BORING NO. BH-03

STORM SURGE SUPPRESSION STUDY - GCCPRD

BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS

PLATE D-3b



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°0'02.72" W 94°5'21.14"	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
				SURFACE EL.: Not Available		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
				STRATUM DESCRIPTION								0.5	1.0	1.5	2.0	2.5
85				CLAY, firm, olive gray, with shell fragments												
90							93		93	22	71					
95																
100																
105																
110				- stiff below 108'		95	98	28	60	16	44					
115				- with sand seams below 118'												
NOTES: 1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. NR: Not Recorded. 4. Boring coordinates were obtained with a hand-held GPS device. 5. Terms and symbols are presented on Plates D-9a and D-9b.												DATE: May 4, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 6' WET ROTARY: 6' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak				

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LOG OF BORING NO. BH-03
STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-3c



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°0'02.72" W 94°5'21.14" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
				STRATUM DESCRIPTION		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
												0.5	1.0	1.5	2.0	2.5
				SAND, medium dense to very dense, fine-grained, greenish gray, with sand seams - with clay seam at 119.5'	120.0											
125																
130			30	- pale brown below 128.5'			7									
135																
140			6	- coarse-grained, 138.5' to 158' - loose at 139'												
145																
150			37													
155																
			53	- fine-grained below 158'												
NOTES: 1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. NR: Not Recorded. 4. Boring coordinates were obtained with a hand-held GPS device. 5. Terms and symbols are presented on Plates D-9a and D-9b.						DATE: May 4, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 6' WET ROTARY: 6' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak										

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LOG OF BORING NO. BH-03
STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-3d



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°0'02.72" W 94°5'21.14"	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
				SURFACE EL.: Not Available		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
												0.5	1.0	1.5	2.0	2.5
165				SAND, medium dense to very dense, fine-grained, pale brown												
170			50/6"	- with shell fragments below 168.5'												
175																
180			28	SILTY SAND, loose to medium dense, olive gray, with clay pockets, shell fragments, and gravel	178.0		16									
185																
190			10													
195																
				CLAY, stiff to very stiff, greenish gray - with sand pockets to 205'	198.0	108	72	20	39	14	25					3.0
NOTES: 1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. NR: Not Recorded. 4. Boring coordinates were obtained with a hand-held GPS device. 5. Terms and symbols are presented on Plates D-9a and D-9b.						DATE: May 4, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 6' WET ROTARY: 6' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak										

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LOG OF BORING NO. BH-03
STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-3e



DEPTH, FT	WATER LEVEL SYMBOL SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°0'02.72" W 94°5'21.14" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
					UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
			STRATUM DESCRIPTION								0.5	1.0	1.5	2.0	2.5
205			CLAY, stiff to very stiff, greenish gray - with sand pockets to 205'												
210						100		54	18	36					
215															
220															
225															
230			- with silt partings and shell fragments, 228' to 248'												
235															
			- olive gray, 238' to 258'												
					85	99	37	31	14	17					3.2

NOTES:

1. ∇ : Water First Noticed. $\blacktriangledown$: Depth To Water after 15 minutes.
2. WOH: Weight of Hammer.
3. NR: Not Recorded.
4. Boring coordinates were obtained with a hand-held GPS device.
5. Terms and symbols are presented on Plates D-9a and D-9b.

DATE: May 4, 2017

TOTAL DEPTH: 400'

CAVED DEPTH: Not Applicable

DRY AUGER: Surface to 6'

WET ROTARY: 6' to 400'

BACKFILL: Cement-Bentonite Grout

LOGGER: E. Schulak

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LOG OF BORING NO. BH-03

STORM SURGE SUPPRESSION STUDY - GCCPRD

BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS

PLATE D-3f

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PLATE D-3g



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°0'02.72" W 94°5'21.14"	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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				UNIT DRY WT, PCF		PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	0.5	1.0	1.5	2.0	2.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
				CLAY, very stiff, tan and brown - with sand pockets and seams to 289'																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

NOTES:

1. ∇: Water First Noticed. ▼: Depth To Water after 15 minutes.
2. WOH: Weight of Hammer.
3. NR: Not Recorded.
4. Boring coordinates were obtained with a hand-held GPS device.
5. Terms and symbols are presented on Plates D-9a and D-9b.

DATE: May 4, 2017

TOTAL DEPTH: 400'

CAVED DEPTH: Not Applicable

DRY AUGER: Surface to 6'

WET ROTARY: 6' to 400'

BACKFILL: Cement-Bentonite Grout

LOGGER: E. Schulak

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LOG OF BORING NO. BH-03

STORM SURGE SUPPRESSION STUDY - GCCPRD

BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS

PLATE D-3h



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°0'02.72" W 94°5'21.14"	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
				SURFACE EL.: Not Available		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
												0.5	1.0	1.5	2.0	2.5
325				CLAY, very stiff, greenish gray - with silt partings to 308' - with shell fragments to 328'												
330																
335																
340			13	- with sand pockets, 338.5' to 348'												
345																
350				- with calcareous nodules, 348' to 358.5' - hard at 350'		113	85	19	51	14	37					5.9
355																
			19	- with shell fragments, 358.5' to 368'												
NOTES: 1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. NR: Not Recorded. 4. Boring coordinates were obtained with a hand-held GPS device. 5. Terms and symbols are presented on Plates D-9a and D-9b.										DATE: May 4, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 6' WET ROTARY: 6' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak						

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LOG OF BORING NO. BH-03
STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-3i



DEPTH, FT	WATER LEVEL SYMBOL SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°0'02.72" W 94°5'21.14"	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
			SURFACE EL.: Not Available		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
			CLAY, very stiff, greenish gray, with silt seams - with shell fragments to 368'								0.5	1.0	1.5	2.0	2.5
365															
370															
375															
380		6	- firm at 379'												
385															
390		20													
395															
		29						37	13	24					
NOTES: 1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. NR: Not Recorded. 4. Boring coordinates were obtained with a hand-held GPS device. 5. Terms and symbols are presented on Plates D-9a and D-9b.								DATE: May 4, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 6' WET ROTARY: 6' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak							

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LOG OF BORING NO. BH-03
STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-3j