SUMMARY OF LABORATORY TESTS

Project No. 08.18.920

Client: United States Army Corps of Engineers

Project: Galveston Channel and San Jacinto PA
Contract No. DACW64-03-D-0008, Task Order No. 0080

Boring No.	Sample No.	Depth (ft)	Torvane Shear Test (tsf)	Soil Description	USCS	Water Content (%)	Dry Density (pcf)	Liquid Limit	Plastic Limit	Plast. Index	Finer than #200 Sieve (%)	Uc/UU. Compr. (tsf)	Failure Strain (%)	Conf. Pres. (psi)	Failure Type
	5	17-18.5		Gray poorly graded SAND with SILT	SP-SM						5.7				
	6	18.5-20		Gray poorly graded SAND with SILT; shells	SP-SM						6.5				
07-219															
	1	0-2		Gray FAT CLAY; organics	CH	38.7	82.4								
	2	2-3.5		Gray poorly graded SAND with SILT	SP-SM						7.8				
	3	7-8.5		Gray poorly graded SAND with SILT	SP-SM						9.6				
	4	12-13.5		Gray poorly graded SAND with SILT	SP-SM						6.6				
	5	17-18.5		Gray poorly graded SAND	SP						4.5				
	6	18.5-20		Gray poorly graded SAND	SP						3.0				
07-220															
	1	0-2		Tan poorly graded SAND	SP						3.8				
	2	2-3.5		Tan poorly graded SAND with SILT	SP-SM						5.7				
	3	7-8.5		Gray poorly graded SAND with SILT	SP-SM						6.9				
	4	12-14		Gray FAT CLAY	CH	64.8	61.6								
	5	14-15.5		Gray poorly graded SAND with SILT	SP-SM						7.1				
	6	18.5-20		Gray poorly graded SAND with SILT; shells	SP-SM						9.1				
07-221															
	1	0-2		Tan poorly graded SAND with SILT; shells	SP-SM						9.2				
	2	2-3.5		Tan poorly graded SAND	SP						3.5				
	3	7-8.5		Gray poorly graded SAND with SILT	SP-SM						7.3				
	4	12-13.5		Gray FAT CLAY	CH	52.2									
	5	13.5-15		Gray FAT CLAY	CH	62.6	63.4								
	6	15-16.5		Gray and tan SITLY SAND	SM						12.4				
	7	18.5-20		Gray poorly graded SAND with SILT; shells	SP-SM						8.7				
07-222															
	1	0-1.5		Tan poorly graded SAND with SILT	SP-SM						5.5				
	2	2-3.5		Tan poorly graded SAND	SP						4.4				
	3	7-8.5		Gray poorly graded SAND	SP						4.8				
	4	12-14		Gray poorly graded SAND with SILT	SP-SM						6.4				
	5	17-18.5		Gray poorly graded SAND	SP						3.8				
	6	18.5-20		Gray poorly graded SAND	SP						3.1				
07-223															
	1	0-2		Tan poorly graded SAND	SP						3.2				
	2	2-3.5		Gray poorly graded SAND with SILT	SP-SM						7.9				
	3	7-8.5		Gray poorly graded SAND with SILT	SP-SM						6.0				
	4	12-13.5		Gray poorly graded SAND	SP						4.5				
	5	17-18.5		Gray and tan poorly graded SAND with SILT	SP-SM						6.7				

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Particle Size Analysis - ASTM D 422

	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.3	75.2	24.5	
□	0.0	0.0	0.3	1.9	5.5	83.8	8.5	
△	0.0	0.0	0.0	0.2	0.5	91.5	7.8	
◇	0.0	0.0	2.6	3.5	6.3	81.1	6.5	
▽	0.0	0.0	0.0	0.0	0.1	90.3	9.6	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	07-216	7	12-13.5	Gray SILTY SAND	SM
□	07-218	2	2-3.5	Gray and tan poorly graded SAND with SILT; shells	SP-SM
△	07-218	4	12-13.5	Gray poorly graded SAND with SILT	SP-SM
◇	07-218	6	18.5-20	Gray poorly graded SAND with SILT; shells	SP-SM
▽	07-219	3	7-8.5	Gray poorly graded SAND with SILT	SP-SM

Tolunay-Wong Engineers, Inc.
Houston, Texas

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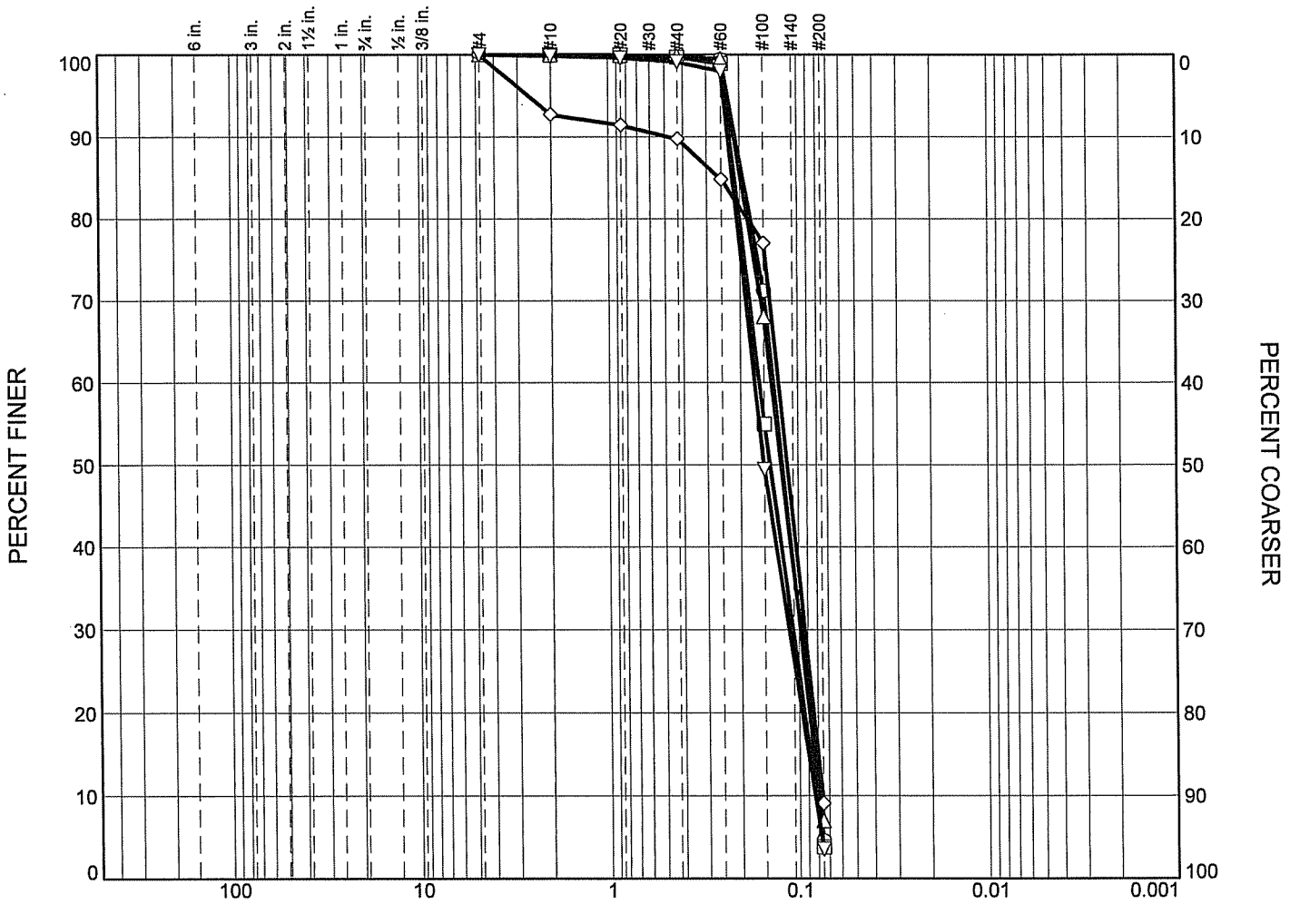
Contract No. DACW64-03-D-0008, Task Order No. 0080
Project No.: 08.18.920 **Figure**

Particle Size Analysis - ASTM D 422



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	0.3	95.1	4.5	
□	0.0	0.0	0.0	0.0	0.3	95.9	3.8	
△	0.0	0.0	0.0	0.0	0.1	93.0	6.9	
◇	0.0	0.0	0.0	7.3	3.0	80.6	9.1	
▽	0.0	0.0	0.0	0.1	0.8	95.6	3.5	

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	07-219	5	17-18.5	Gray poorly graded SAND	SP
□	07-220	1	0-2	Tan poorly graded SAND	SP
△	07-220	3	7-8.5	Gray poorly graded SAND with SILT	SP-SM
◇	07-220	6	18.5-20	Gray poorly graded SAND with SILT; shells	SP-SM
▽	07-221	2	2-3.5	Tan poorly graded SAND	SP

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Hole No. 07-219

BORING LOG	DISTRICT	INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT Galveston Channel and San Jacinto PA	7. ELEVATION OF HOLE
2. LOCATION (Coordinates or Station) N=13689443 E=3316521	8. DATUM FOR ELEVATION
3. DRILLING AGENCY Dempsey (Geotest Engineering, Inc.)	9. ELEVATION OF GROUNDWATER TOD: 24-HR:
4. LABORATORY TESTING AGENCY Tolunay-Wong Engineers, Inc.	10. DRILLING DATE and TIME STARTED: 3/28/08 COMPLETED: 3/28/08
5. DEPTH OF WATER TOD: 24-HR:	11. CLASSIFICATION REFERENCE
6. DEPTH OF HOLE 20 ft	12. ENGINEER

DEPTH (ft)	ELEVATION (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE	NUMBER	RECOVERY (%)	SPT (N)	PENETROMETER (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	FINES CONTENT (% <200)
			FAT CLAY (CH), firm, dark gray & gray, w/ roots		1			0.75	82.4	38.7				
			POORLY GRADED SAND WITH SILT (SP-SM), medium dense, gray		2		33							7.8
5					3		25							9.6
10			-dense below 12'		4		36							6.6
15			**POORLY GRADED SAND (SP)**, dense, gray		5		36							4.5
					6		49							3
20														
25														
30														

SWG 1836 BOR 08.18.920.GPJ TOLUNAY-WONG ENGINEERS.GDT 11/10/08

ENG FORM: SWG 1836 BOR