LOG OF BORING B-1

Rock Engineering & Testing Lab. Inc
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CLIENT: Mott MacDonald, LLC
PROJECT: Children's Beach Shoreline Protection
LOCATION: South Padre Island, Texas
NUMBER: G121096
DATE(S) DRILLED: 2/23/2021

DRILLING METHOD(S):
Hollow Stem Auger

GROUNDWATER INFORMATION:
Groundwater (GW) was encountered at a depth of 3.5 feet during drilling.
Wet and Caved at 3.5 feet upon completion.

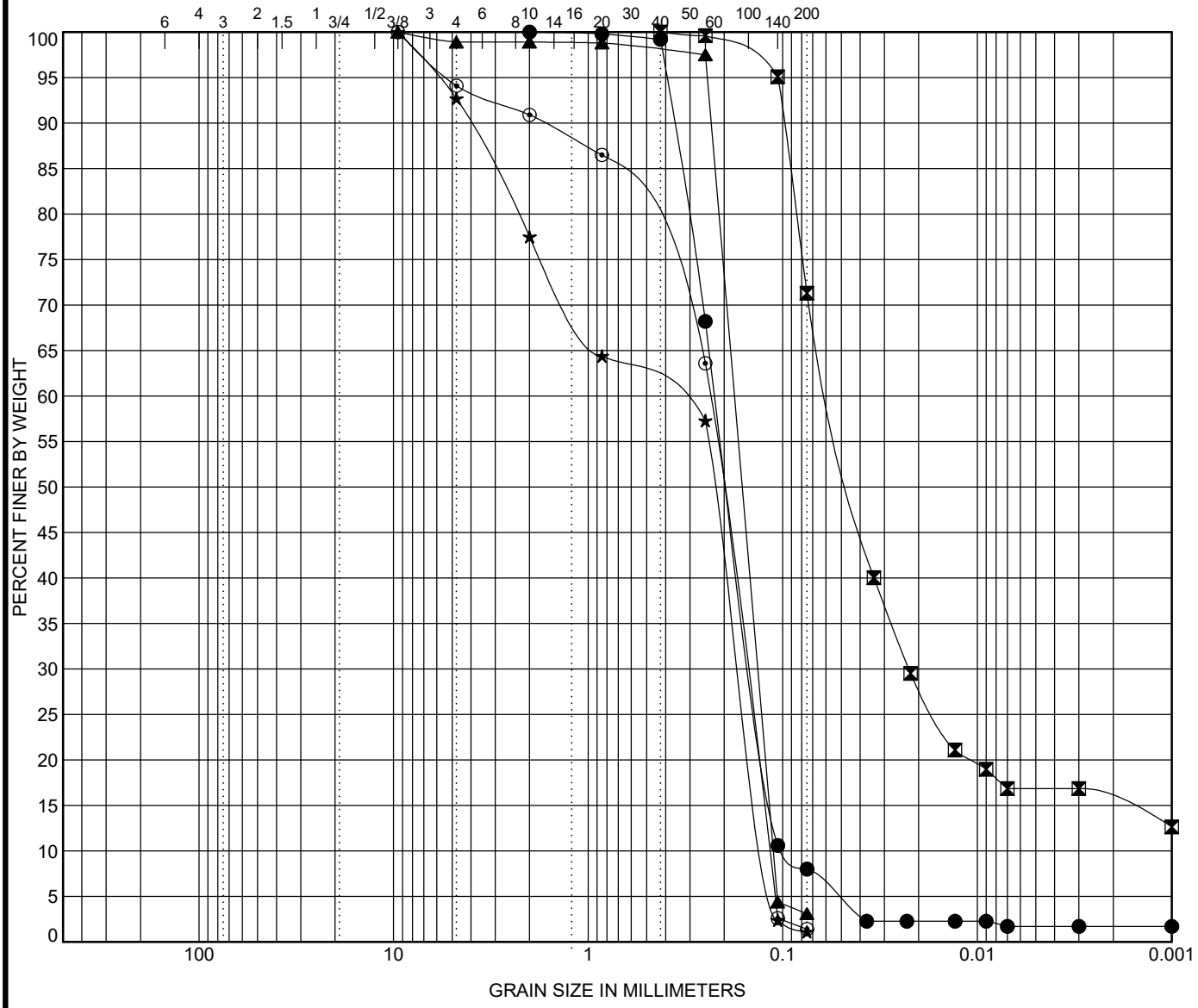
SURFACE ELEVATION: N/A

SOIL SYMBOL	DEPTH (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	ATTERBERG LIMITS LIQUID LIMIT LL	ATTERBERG LIMITS PLASTIC LIMIT PL	ATTERBERG LIMITS PLASTICITY INDEX PI	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	DESCRIPTION OF STRATUM
		SS S-1		N= 5	12							**POORLY GRADED SAND**, brown, moist, loose.
	5	SS S-2		N= 15	22	NP	NP	NP			8	Same as above, with silt, medium.
		SS S-3		N= 15	23						2	Same as above.
	10	SS S-4		N= 2	25							**POORLY GRADED SAND**, brown, moist, very loose.
		SS S-5		N= WOH	30	26	20	6			72	**SILTY CLAY WITH SAND**, brown, moist, very soft. (CL-ML)
	15	SS S-6		N= WOH	32							Same as above.
	20	SS S-7		N= 2	30	NP	NP	NP			66	**SANDY SILT**, brown, moist, very soft. (ML)
	25	SS S-8		N= 1	30	NP	NP	NP			13	**SILTY SAND**, brown, moist, very loose. (SM)
	30	SS S-9		N= 21	25							Same as above, grey, medium.
	35	SS S-10		N= 16	25							Same as above.
	40	SS S-11		N= 20	23							Same as above.
												Boring was terminated at a depth of 40 feet.

N - STANDARD PENETRATION TEST RESISTANCE
Qc - STATIC CONE PENETROMETER TEST INDEX
P - POCKET PENETROMETER RESISTANCE
Tv - TORVANE SHEAR STRENGTH TEST

REMARKS:
Drilling operations were performed by RETL at GPS Coordinates
N° 26.06867 W° 97.16278
Location: Behind Bulkhead, Approximately 4 feet above water.

LOG_OF_BORING G121096.GPJ ROCK_ETL.GDT 3/11/21



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen ID	Depth	Classification	LL	PL	PI	Cc	Cu
●	**B-1**	**3.5'**					**0.92**	**2.26**
⊠	**B-1**	**11.0'**						
▲	**GS-1**	**0.0'**	**POORLY GRADED SAND(SP)**				**0.91**	**1.59**
★	**GS-2**	**0.0'**	**POORLY GRADED SAND(SP)**				**0.56**	**3.34**
⊙	**GS-3**	**0.0'**	**POORLY GRADED SAND(SP)**				**0.87**	**2.02**

	Specimen ID	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-1**	**3.5'**	**2**	**0.221**	**0.142**	**0.098**	**0.0**	**92.0**	**8.0**	
⊠	**B-1**	**11.0'**	**0.425**	**0.056**	**0.022**		**0.0**	**28.7**	**71.3**	
▲	**GS-1**	**0.0'**	**9.5**	**0.177**	**0.134**	**0.112**	**1.1**	**95.8**	**3.1**	
★	**GS-2**	**0.0'**	**9.5**	**0.398**	**0.163**	**0.119**	**7.3**	**91.6**	**1.1**	
⊙	**GS-3**	**0.0'**	**9.5**	**0.238**	**0.156**	**0.118**	**5.9**	**92.7**	**1.4**	

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GRAIN SIZE DISTRIBUTION

Project: Children's Beach Shoreline Protection

Location: South Padre Island, Texas

Number: G121096

US_GRAIN_SIZE_G121096.GPJ US_LAB.GDT 3/15/21

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KEY TO SOIL CLASSIFICATION AND SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well Graded Gravels or Gravel-Sand mixtures, little or no fines
		GP	Poorly Graded Gravels or Gravel-Sand mixtures, little or no fines
		GM	Silty Gravels, Gravel-Sand-Silt mixtures
		GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	SAND AND SANDY SOILS	SW	Well Graded Sands or Gravelly Sands, little or no fines
		SP	Poorly Graded Sands or Gravelly Sands, little or no fines
		SM	Silty Sands, Sand-Silt Mixtures
		SC	Clayey Sands, Sand-Clay mixtures
FINE GRAINED SOILS	SILTS AND CLAYS LL < 50	ML	Inorganic Silts and very fine Sands, Rock Flour, Silty or Clayey fine Sands or Clayey Silts
		CL	Inorganic Clays of low to medium plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
		OL	Organic Silts and Organic Silt-Clays of low plasticity
	SILTS AND CLAYS LL > 50	MH	Inorganic Silts, Micaceous or Diatomaceous fine Sandy or Silty soils, Elastic Silts
		CH	Inorganic Clays of high plasticity, Fat Clays
		OH	Organic Clays of medium to high plasticity, Organic Silts
HIGHLY ORGANIC SOILS		PT	Peat and other Highly Organic soils

TERMS CHARACTERIZING SOIL STRUCTURE

SLICKENSIDED - having inclined planes of weakness that are slick and glossy in appearance

FISSURED - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical

LAMINATED (VARVED) - composed of thin layers of varying color and texture, usually grading from sand or silt at the bottom to clay at the top

CRUMBLY - cohesive soils which break into small blocks or crumbs on drying

CALCAREOUS - containing appreciable quantities of calcium carbonate, generally nodular

WELL GRADED - having wide range in grain sizes and substantial amounts of all intermediate particle sizes

POORLY GRADED - predominantly of one grain size uniformly graded) or having a range of sizes with some intermediate size missing (gap or skip graded)

SYMBOLS FOR TEST DATA

- — Groundwater Level (Initial Reading)
- — Groundwater Level (Final Reading)
- — Shelby Tube Sample
- — SPT Samples
- — Auger Sample
- — Rock Core

TERMS DESCRIBING CONSISTENCY OF SOIL

COARSE GRAINED SOILS		FINE GRAINED SOILS		
DESCRIPTIVE TERM	NO. BLOWS/FT. STANDARD PEN. TEST	DESCRIPTIVE TERM	NO. BLOWS/FT. STANDARD PEN. TEST	UNCONFINED COMPRESSION TONS PER SQ. FT.
Very Loose	0 - 4	Very Soft	< 2	< 0.25
Loose	4 - 10	Soft	2 - 4	0.25 - 0.50
Medium	10 - 30	Firm	4 - 8	0.50 - 1.00
Dense	30 - 50	Stiff	8 - 15	1.00 - 2.00
Very Dense	over 50	Very Stiff	15 - 30	2.00 - 4.00
		Hard	over 30	over 4.00

Field Classification for "Consistency" is determined with a 0.25" diameter penetrometer