



- GEOTECHNICAL ENGINEERING
- CONSTRUCTION MATERIALS ENGINEERING & TESTING
- SOILS • ASPHALT • CONCRETE



SUPPLEMENTAL GEOTECHNICAL REPORT #1

Date: February 15, 2024

ROCK Project No.: G222838

Project Name: Bandera Ranch Townhomes

Subject: Additional Borings

Introduction

Rock Engineering and Testing Laboratory, LLC (ROCK) previously submitted a Geotechnical Engineering Services report dated December 23, 2022 (ROCK Job No. G222838). In accordance with the Supplemental Authorization January 15, 2024, ROCK performed additional field exploration services to aid in the proposed cut/fill operations, laboratory testing, and is providing this supplemental letter report with the results of the additional services.

The additional boring information is provided in the table below:

SUMMARY OF BORING INFORMATION	
Boring	Depth (ft)
B-28 to B-31	40

Soil Conditions and Recommendations

The results of the additional field exploration and laboratory testing program indicate that the subsurface conditions at the supplemental boring locations are consistent with those identified in the borings completed as part of the original geotechnical study. Specifically, the generalized soil and rock conditions encountered in the supplemental borings performed at the site consist of a relatively thin upper stratum of clay that ranges in thickness from 4 to 5-inches, underlain by weathered and competent limestone rock that extends to the boring termination depths of approximately 40-feet. The limestone rock is very hard, contains clay seams and layers, and is non-expansive. The weathered limestone stratum has severe weathering at boring B-31 from a depth of 5-inches to 8-feet, which generally means that it is somewhat softer limestone and has increased clay inclusions.

Therefore, the geotechnical recommendations and discussion of rock excavation considerations provided in the original report remain unchanged. The updated Boring Location Plan and Logs of Boring for B-28 to B-31 are provided as attachments.

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February 15, 2024
Foundation Real Estate, LLC
ROCK Project No.: G222848

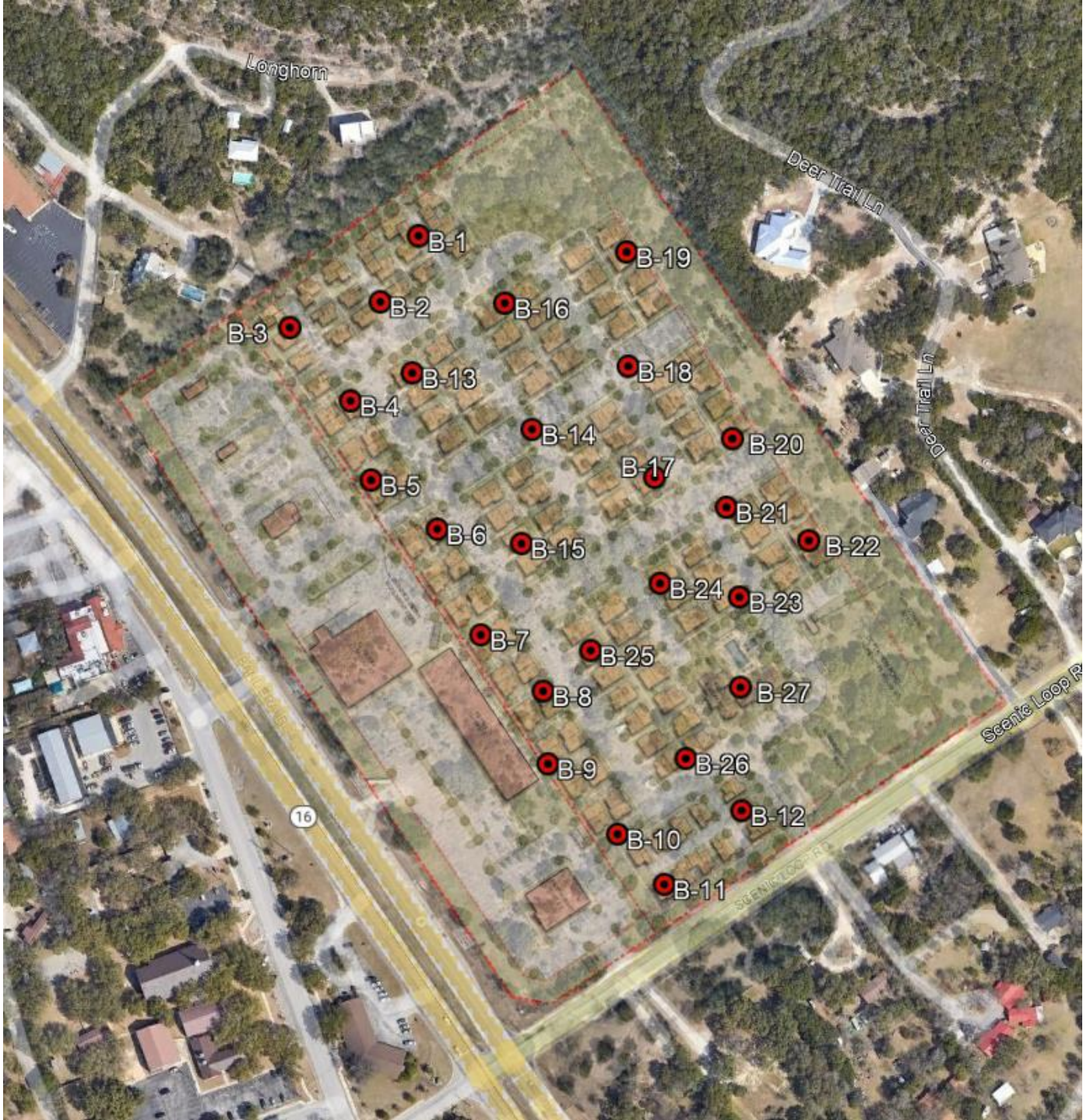
BANDERA RANCH TOWNHOMES
15030 Bandera Road
Helotes, Texas

Attachments

Original Boring Location Plan
Supplemental Boring Location Plan
Logs of Boring B-28 to B-31

ORIGINAL BORING LOCATION PLAN

NO SCALE
LOCATIONS ARE APPROXIMATE



February 15, 2024
Paravel Capital LLC
ROCK Project No.: G222838

BANDERA RANCH TOWNHOMES
15030 Bandera Road
Helotes, Texas

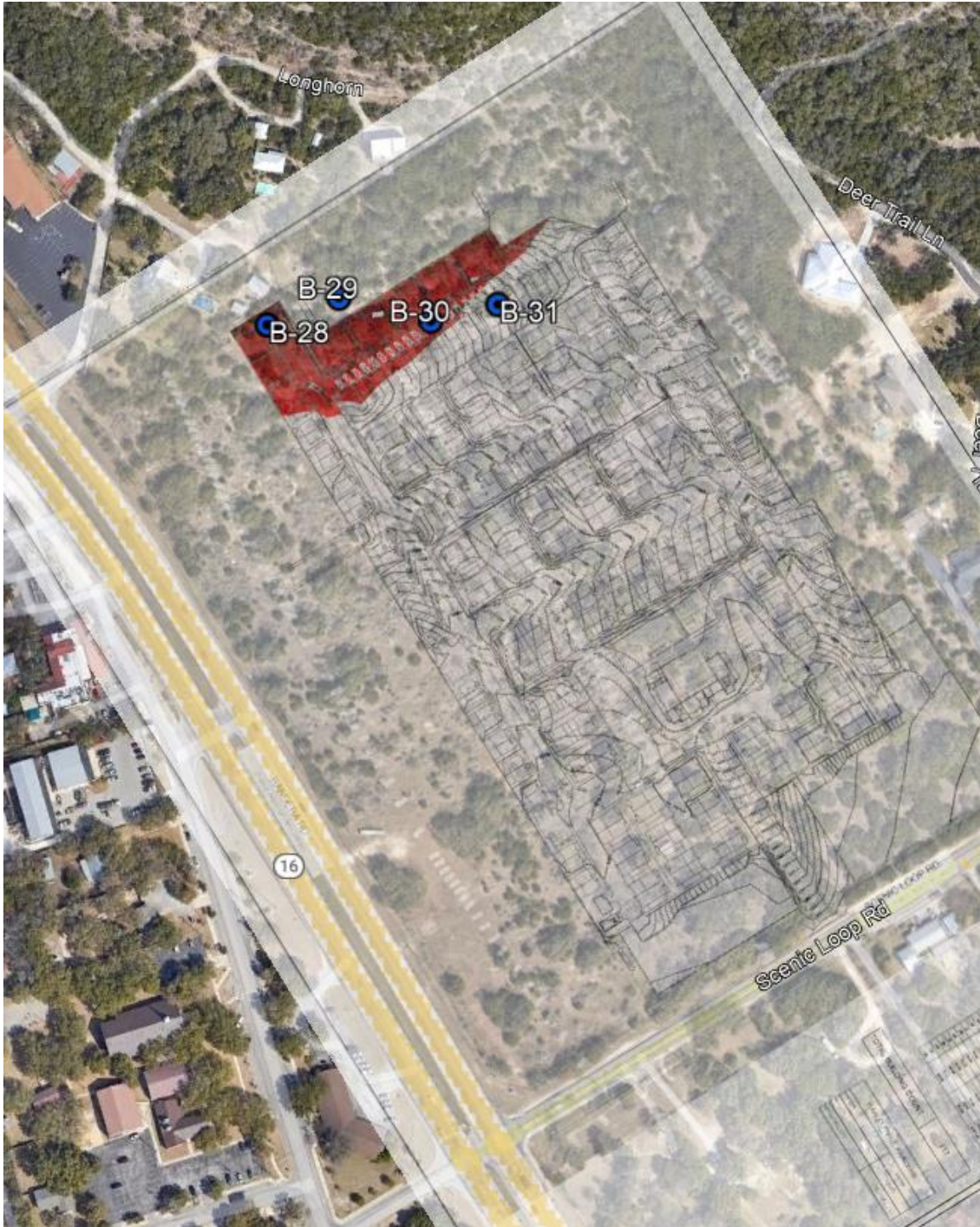


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SUPPLEMENTAL BORING LOCATION PLAN

NO SCALE
LOCATIONS ARE APPROXIMATE



February 15, 2024
Paravel Capital LLC
ROCK Project No.: G222838

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SUPPLEMENTAL BORING LOCATION PLAN

NO SCALE
LOCATIONS ARE APPROXIMATE



February 15, 2024
Paravel Capital LLC
ROCK Project No.: G222838

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LOG OF BORING 28



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A UES COMPANY

CLIENT: Paravel Capital LLC
PROJECT: Bandera Ranch Townhomes
LOCATION: 15030 Bandera Rd; Helotes, Texas
NUMBER: G222838

DATE(S) DRILLED: 02/01/2024

FIELD DATA				LABORATORY DATA							DRILLING METHOD(S):	
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			DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	Air Rotary
						LL	PL	PI				GROUNDWATER INFORMATION:
						Groundwater was not encountered during the drilling operations and the boring was dry upon completion of the drilling operations.						
SURFACE ELEVATION: N/A												
DESCRIPTION OF STRATUM												
		GRAB S-1										<u>DARK BROWN CLAY= 4-INCHES</u>
	5	SPT S-2	N=50/1.5"	7								<u>LIMESTONE</u> , light brown to tan, very hard.
		SPT S-3	N=50/1"	2						16		
		SPT S-4	N=50/1"	2								
	10	SPT S-5	N=50/1.5"	2								
		SPT S-6	N=50/2"	2								
	20	SPT S-7	N=50/1.5"	2								
		SPT S-8	N=50/1.5"	4						23		
	30	SPT S-9	N=50/1"	4								
		SPT S-10	N=50/1"	5								
	40	SPT S-11	N=50/1"	3								
Boring terminated at depth of 40-feet.												
N - STANDARD PENETRATION TEST RESISTANCE Qc - STATIC CONE PENETROMETER TEST INDEX P - POCKET PENETROMETER RESISTANCE											REMARKS: Boring location determined by ROCK. Drilling operations performed by ROCK. GPS Coordinates: N 29.585034°, W -98.693530°	

LOG_OF_BORING_G222838_LOGS.GPJ ROCK_ETL_GDT_2/15/24

LOG OF BORING 29



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A UES COMPANY

CLIENT: Paravel Capital LLC
PROJECT: Bandera Ranch Townhomes
LOCATION: 15030 Bandera Rd; Helotes, Texas
NUMBER: G222838

DATE(S) DRILLED: 02/02/2024

FIELD DATA				LABORATORY DATA							DRILLING METHOD(S):	
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			DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	Air Rotary
						GROUNDWATER INFORMATION:						
						LL	PL	PI				Groundwater was not encountered during the drilling operations and the boring was dry upon completion of the drilling operations.
SURFACE ELEVATION: N/A												
DESCRIPTION OF STRATUM												
		SPT S-1	N=41-50/1"	15								DARK BROWN CLAY= 4-INCHES
	5	SPT S-2	N=50/1"	6						27		LIMESTONE , light brown to tan, very hard.
		SPT S-3	N=50/1"	2								
		SPT S-4	N=50/1"	2								
	10	SPT S-5	N=50/1.5"	2						17		
		SPT S-6	N=50/1"	2								
	15											
		SPT S-7	N=50/2"	2								
	20											
		SPT S-8	N=50/1"	4								
	25											
		SPT S-9	N=50/1"	4							12	
	30											
		SPT S-10	N=50/1"	4								
	35											
		SPT S-11	N=50/1"	4								
	40											Boring terminated at depth of 40-feet.
N - STANDARD PENETRATION TEST RESISTANCE Qc - STATIC CONE PENETROMETER TEST INDEX P - POCKET PENETROMETER RESISTANCE											REMARKS: Boring location determined by ROCK. Drilling operations performed by ROCK. GPS Coordinates: N 29.585120°, W -98.693158°	

LOG_OF_BORING_G222838.LOGS.GPJ ROCK_ETL.GDT 2/15/24

LOG OF BORING 30



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A UES COMPANY

CLIENT: Paravel Capital LLC
PROJECT: Bandera Ranch Townhomes
LOCATION: 15030 Bandera Rd; Helotes, Texas
NUMBER: G222838

DATE(S) DRILLED: 02/02/2024

FIELD DATA				LABORATORY DATA							DRILLING METHOD(S): Air Rotary	
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			DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	GROUNDWATER INFORMATION: Groundwater was not encountered during the drilling operations and the boring was dry upon completion of the drilling operations.
						LL	PL	PI				SURFACE ELEVATION: N/A
						DESCRIPTION OF STRATUM						
		SPT S-1	N=10-50/5.5"	13							20	DARK BROWN CLAY= 5-INCHES
	5	SPT S-2	N=51/2.5"	9								LIMESTONE , light brown to tan, very hard.
		SPT S-3	N=50/1"	5								
		SPT S-4	N=50/1"	4								
	10	SPT S-5	N=50/2"	2								
		SPT S-6	N=50/1.5"	2						45		
		SPT S-7	N=50/1"	3								
	25	SPT S-8	N=50/1"	4								
		SPT S-9	N=50/1.5"	5								
	35	SPT S-10	N=50/1.5"	5								
		SPT S-11	N=50/1"	5								
	40											
N - STANDARD PENETRATION TEST RESISTANCE Qc - STATIC CONE PENETROMETER TEST INDEX P - POCKET PENETROMETER RESISTANCE											REMARKS: Boring location determined by ROCK. Drilling operations performed by ROCK. GPS Coordinates: N 29.585081°, W -98.692672°	

LOG_OF_BORING_G222838.LOGS.GPJ ROCK.ETL.GDT 2/15/24

LOG OF BORING 31



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A UES COMPANY

CLIENT: Paravel Capital LLC
PROJECT: Bandera Ranch Townhomes
LOCATION: 15030 Bandera Rd; Helotes, Texas
NUMBER: G222838

DATE(S) DRILLED: 02/06/2024

FIELD DATA				LABORATORY DATA							DRILLING METHOD(S):	
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			DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	Air Rotary
						LL	PL	PI				GROUNDWATER INFORMATION:
						Groundwater was not encountered during the drilling operations and the boring was dry upon completion of the drilling operations.						
SURFACE ELEVATION: N/A												
DESCRIPTION OF STRATUM												
		SPT S-1	N=20-50/2"	27								DARK BROWN CLAY= 5-INCHES
	5	SPT S-2	N=49	10						33		WEATHERED LIMESTONE , light brown, with clay inclusions, very hard.
		SPT S-3	N=23-50/2"	9								
		SPT S-4	N=17-50/5"	8								
	10	SPT S-5	N=50/2"	3								LIMESTONE , light brown to tan, very hard.
	15	SPT S-6	N=50/2"	4								
	20	SPT S-7	N=50/1"	4						24		
	25	SPT S-8	N=50/1"	4								
	30	SPT S-9	N=50/1"	5								
	35	SPT S-10	N=50/1"	6								
	40	SPT S-11	N=50/1"	7								Boring terminated at depth of 40-feet.
N - STANDARD PENETRATION TEST RESISTANCE Qc - STATIC CONE PENETROMETER TEST INDEX P - POCKET PENETROMETER RESISTANCE											REMARKS:	
											Boring location determined by ROCK. Drilling operations performed by ROCK. GPS Coordinates: N 29.585177°, W -98.692327°	

LOG_OF_BORING_G222838.LOGS.GPJ ROCK ETL_GDT_2/15/24



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KEY TO SOIL CLASSIFICATION AND SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM			TERMS CHARACTERIZING SOIL STRUCTURE	
MAJOR DIVISIONS	SYMBOL	NAME		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well Graded Gravels or Gravel-Sand mixtures, little or no fines	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
		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	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)
		SP	Poorly Graded Sands or Gravelly Sands, little or no fines	
		SM	Silty Sands, Sand-Silt Mixtures	
		SC	Clayey Sands, Sand-Clay mixtures	
SILTS AND CLAYS	LL < 50	ML	Inorganic Silts and very fine Sands, Rock Flour, Silty or Clayey fine Sands or Clayey Silts	SYMBOLS FOR TEST DATA ▽ — Groundwater Level (Initial Reading) ▼ — Groundwater Level (Final Reading) ■ — Shelby Tube Sample ⊠ — SPT Samples — Auger Sample — Rock Core ▼ — Texas Cone Penetrometer ☞ — Grab Sample
		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	
	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	
NON USCS MATERIALS		Limestone		
		Marl/Claystone		
		Sandstone		

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" of Fine Grained Soils is determined with a 0.25" diameter penetrometer