

**PARTICLE-SIZE ANALYSIS OF SOILS**  
**ASTM D 422**

Client	GTS	Boring	NA
Client Project	QA PROGRAM VERIFICATION	Depth	NA
Project No.	24000	Sample	NA
		Lab Sample No.	24000001

USCS Description	<b>BROWN FAT CLAY WITH SAND</b>
USCS Group Symbol	<b>CH</b> AASHTO Classification <b>A-7-5 (44)</b>
USDA Description	<b>SILT LOAM</b>

<b>MECHANICAL SIEVE ANALYSIS</b>							
As-Received Sample Correction For Split Samples (J-Factor)	US Std. Sieve Size	Sieve Opening (mm)	Wt. of Soil Retained (gm)	Percent Retained (%)	Cumulative Percent Retained	Percent Finer (%)	Final Percent Finer
+3/4" Air Dry Wt, gm	3"	75	0	0.0	0.0	100.0	100.0
	2 1/2"	62.5	0	0.0	0.0	100.0	100.0
100% Passing 3/4 Sieve	2"	50	0	0.0	0.0	100.0	100.0
No Correction Needed.	1 1/2"	37.5	0	0.0	0.0	100.0	100.0
	1"	25	0	0.0	0.0	100.0	100.0
Passing -3/4" (J-Factor)	3/4"	19	0	0.0	0.0	100.0	100.0
Split Sample, -3/4"	1/2"	12.5	0	0.0	0.0	100.0	100.0
	3/8"	9.5	0	0.0	0.0	100.0	100.0
Tare No.	#4	4.75	0.47	0.1	0.1	99.9	99.9
Wt. Tare + WS., gm	#10	2	3.09	0.9	1.0	99.0	99.0
Wt. Tare + DS., gm	#20	0.85	6.28	1.8	2.8	97.2	97.2
Wt. Tare, gm	#40	0.425	4.96	1.4	4.3	95.7	95.7
Wt. of DS., gm	#60	0.25	3.81	1.1	5.4	94.6	94.6
Water Content, %	#140	0.106	16.97	4.9	10.3	89.7	89.7
	#200	0.075	12.09	3.5	13.8	86.2	86.2
Wt. of +#200 Sample, gm	Pan	-	298.4	86.2	100.0	-	-
Wt. of -#200 Sample, gm	The final percent finer combines the gradation of the plus 3/4" and minus 3/4" material.						

<b>HYDROMETER ANALYSIS</b>							
Hydrometer Sample Weight	Elapsed Time (min.)	R Measured	Composite Correction	R Corrected	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
Tare No.	931	0	NA	NA	NA	NA	NA
Wt. Tare + DS., gm	139.52	2	33	7	26	78.4	0.0313
Wt. Tare, gm	101.74	5	31	7	24	72.4	0.0201
Wt. Dispers., gm	5	15	28	7	21	63.4	0.0119
Wt. Dry Soil, gm	32.78	30	25.5	7	18.5	55.8	0.0085
K Factor	0.0135	60	23	7	16	48.3	0.0061
Composite Correction	7	240	19	7	12	36.2	0.0031
a Factor	0.99	1440	15	7	8	24.1	0.0013
Average Test Temp, °C	20.0	The adjusted percent finer is corrected for the percent passing the -#200 sieve.					
Specific Gravity, Assumed	2.7						

<b>USCS SOIL CLASSIFICATION</b>				<b>USDA CLASSIFICATION</b>				
Corrected For 100% Passing a 3" Sieve				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
% Gravel (-3" & +#4)	0.1	D60, mm	NA	100	100	Gravel	1.0	0
Coarse=0; Fine=0.1		D30, mm	NA	2	99.0			
% Sand (-#4 & +#200)	13.6	D10, mm	NA	0.05	77.6	Sand	21.4	21.6
Coarse=0.9; Med.=3.2; Fine=9.5		Cc	NA	0.002	25.8			
% Fines (-#200)	86.2	Cu	NA			Silt	51.8	52.3
% Plus #200 (-3")	13.8							
<b>USCS Description</b>				<b>USDA Classification</b>				
<b>FAT CLAY WITH SAND</b>				<b>SILT LOAM</b>				
USCS Group Symbol	Atterberg Limits Group Symbol							
<b>CH</b>	<b>CH, LL=85, PL=32, PI=53</b>							
Auxiliary Information	Wt Ret, gm	% Retained	% Finer					
12" Sieve - 300 mm	0	0.0	100.0					
6" Sieve - 150 mm	0	0.0	100.0					
3" Sieve - 75 mm	0	0.0	100.0					

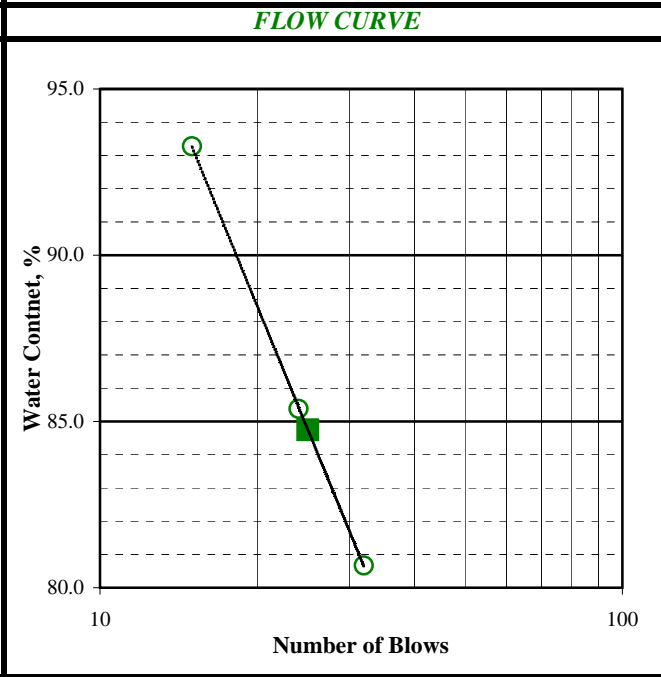
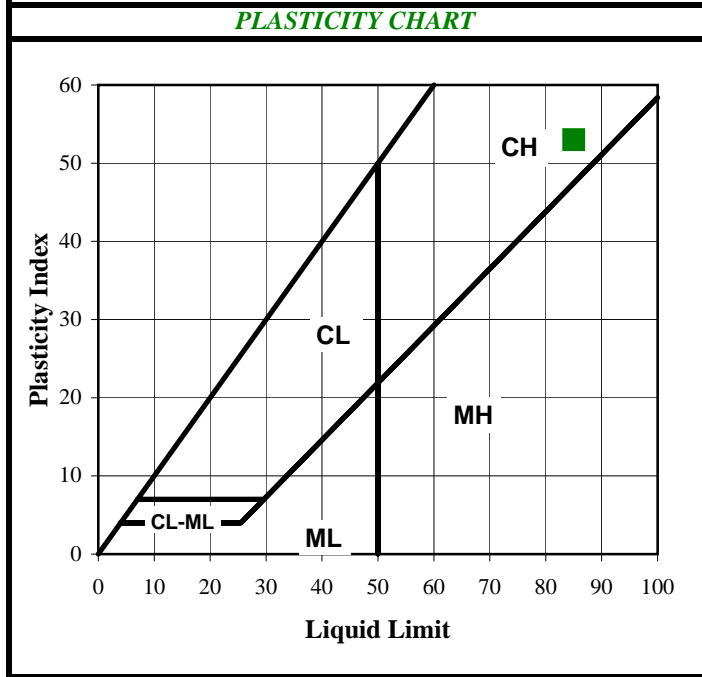
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**LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS  
ASTM D 4318**

Client	GTS	Boring No.	NA
Client Project	QA PROGRAM VERIFICATION	Depth(ft)	NA
Project No.	24000	Sample No.	NA
		Lab Sample No.	24000001
Soil Description:	BROWN FAT CLAY		
(-#40 Fraction)			

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	933	Liquid Limit (LL), %	85
Wt. Tare & WS, gm	563.30	Plastic Limit (PL), %	32
Wt. Tare & DS, gm	448.42	Plasticity Index (PI), %	53
Wt. Water, gm	114.88	USCS Symbol (-#40 Fraction)	CH
Wt. Tare, gm	102.35	Sample Preparation:	Wet Method
Wt. DS, gm	346.07	Liquidity Index, %	2.3%
Water Content, %	33.2	Clay Fraction (% 2 microns)	NA
		Skempton's Activity (A)	NA

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Test Number	1	2	3	1	2	3	
Tare Number	509	463	403	436	429	425	
Wt. Tare & WS, gm	14.88	14.12	13.64	17.90	17.78	18.02	
Wt. Tare & DS, gm	13.89	13.32	12.95	14.77	14.51	14.55	
Wt. Water, gm	0.99	0.80	0.69	3.13	3.27	3.47	
Wt. Tare, gm	10.79	10.79	10.89	10.89	10.68	10.83	
Wt. DS, gm	3.10	2.53	2.06	3.88	3.83	3.72	
Water Content, %	31.9	31.6	33.5	80.7	85.4	93.3	
				# of Blows	32	24	15



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**PARTICLE-SIZE ANALYSIS OF SOILS**

Client	GTS	Boring	NA
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Client Project  
Project No.

QA PROGRAM VERIFICATION  
24000

Depth  
Sample

NA  
NA

Lab Sample No. 24000001

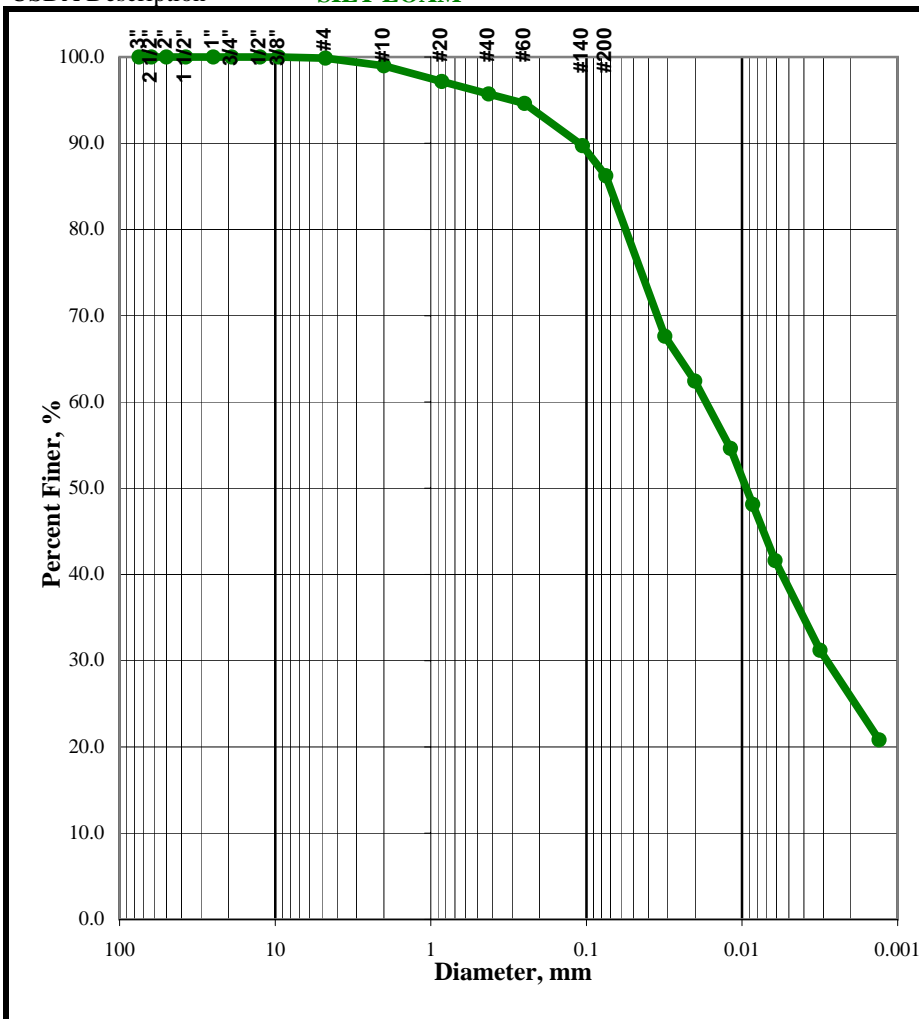
USCS Description  
USCS Group Symbol  
USDA Description

**BROWN FAT CLAY WITH SAND**

**CH**

AASHTO Classification **A-7-5 (44)**

**SILT LOAM**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer (%)
3"	75	100.0
2 1/2"	62.5	100.0
2"	50	100.0
1 1/2"	37.5	100.0
1"	25	100.0
3/4"	19	100.0
1/2"	12.5	100.0
3/8"	9.5	100.0
#4	4.75	99.9
#10	2	99.0
#20	0.85	97.2
#40	0.425	95.7
#60	0.25	94.6
#140	0.106	89.7
#200	0.075	86.2
NA	0.031	67.6
NA	0.020	62.4
NA	0.012	54.6
NA	0.009	48.1
NA	0.006	41.6
NA	0.003	31.2
NA	0.001	20.8

**USCS SOIL CLASSIFICATION**

<i>Corrected For 100% Passing a 3" Sieve</i>					<b>USDA CLASSIFICATION</b>							
<b>% Gravel (-3" &amp; #4)</b>	<b>0.1</b>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA			
<i>Coarse=0; Fine=0.1</i>		D60, mm	NA	Gravel			1.0					
<b>% Sand (-#4 &amp; #200)</b>	<b>13.6</b>	D30, mm	NA					Sand		21.4		
<i>Coarse=0.9; Med.=3.2; Fine=9.5</i>		D10, mm	NA								Silt	51.8
<b>% Fines (-#200)</b>	<b>86.2</b>	Cc	NA		Clay	25.8						
<b>% Plus #200 (-3")</b>	<b>13.8</b>	Cu	NA									
<b>USCS Description</b>												
<b>FAT CLAY WITH SAND</b>												
USCS Group Symbol	Atterberg Limits Group Symbol											
<b>CH</b>	<b>CH, LL=85, PL=32, PI=53</b>											
Auxiliary Information	Wt Ret, gm	% Retained	% Finer									
12" Sieve - 300 mm	0	0.0	100.0									
6" Sieve - 150 mm	0	0.0	100.0									
3" Sieve - 75 mm	0	0.0	100.0									
				<b>USDA Classification</b>								
				<b>SILT LOAM</b>								

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**USDA CLASSIFICATION CHART**

Client  
Client Project

GTS  
QA PROGRAM VERIFICATION

Boring  
Depth

NA  
NA

Project No.

24000

Sample

NA

Lab Sample No.

24000001

USCS Description

**BROWN FAT CLAY WITH SAND**

USCS Group Symbol

**CH**

AASHTO Classification **A-7-5 (44)**

USDA Description

**SILT LOAM**

