Subsurface Investigation Report

Proposed Four Story Building

Located At

19305 Gulf Blvd.
Indian Shores, Pinellas County, Florida

January 2010

Prepared for

Town of Indian Shores
19305 Gulf Blvd.
Indian Shores, FL 33785

GULF COAST TESTING LABORATORY INC.
5745 Park Boulevard North
PINELLAS PARK, FL 33781
CONSTRUCTION MATERIALS ENGINEERING COUNCIL CERTIFIED
PHONE: (727) 544:4080 *FAX*: (727) 544:7532

GULF COAST TESTING LABORATORY INC.

5745 PARK BOULEVARD
PINELLAS PARK, FL 33781
CONSTRUCTION MATERIALS ENGINEERING COUNCIL CERTIFIED
CERTIFICATE of AUTHORIZATION # 00002370
***PHONE*: (727) 544-4080 *FAX*: (727) 544-7532**

January 19, 2010
Lab #16408

Town of Indian Shores
19305 Gulf Blvd.
Indian Shores, FL 33785

Attention: Mr. Lawrence Nayman

RE: **Subsurface Investigation**
Proposed Four Story Building
19305 Gulf Blvd.
Indian Shores, Pinellas County, Florida 33785

Gentlemen:

Gulf Coast Testing Laboratory, Inc. has completed the subsurface investigation in the above referenced site as authorized in accordance with our proposal letter dated November 13, 2009.

Due to the existing one story structure, the three Standard Penetration Test borings had to be located at the north side, the west side and south sides of the proposed building at the approximate locations as indicated on the pre-marked building drawing as supplied to our office by Mr. Nayman. The approximate locations of these three borings are shown on the attached sketch.

The test borings B-1 and B-2 were taken to depths of 40 feet below the existing round surface. The test boring B-3 was taken to a depth of 35 feet below the existing ground surface.

This report presents the soil test data along with our evaluation for the pile foundation support for the proposed four story building.

SOIL EXPLORATION METHOD

The three test borings performed in this site were made in accordance with ASTM D-1586 "Penetration Test and Split Barrel Sampling of Soils". Rotary drilling was used to advance the best borings. No casings were required in these borings.

The Standard Penetration Resistance (N) is the number of blows of a 140 pound hammer falling 30 inches to drive a 2 inch outer diameter/1.4 inch inner diameter, split spoon sampler, one foot.

The sampler was initially seated 6 inches to penetrate any loose cuttings, whereupon the number of blows, required to produce the next foot of penetration was recorded. A representative of this firm

classified the samples in the field as they were obtained and a representative portion of each sample type were then sealed and transferred to our facility for further verification.

The soil samples will be retained by the engineering facility for a period of 90 days from the date of this report, and then disposed of, unless otherwise notified.

SITE CONDITIONS AND SUBSOIL OBSERVATIONS

The property is located east of Gulf Blvd. and west of the Inter Coastal Waterway in the Town of Indian Shores, Pinellas County, Florida. The proposed building area is located behind the existing city buildings and there are existing one story structures in the proposed building area. As explained earlier, the three test borings were located in the accessible areas and the site surface at these boring locations was either paved area or landscaped area. Due to the possible underground utility lines in this area, a shallow hand auger boring was done at each boring location to a depth of 4 feet below the existing ground surface and then the Standard Penetration Test boring involving rotary drilling operations was done in these locations.

In general, all the three test borings encountered sands with variable amounts of shell fragments in the shallow depth range of 6± feet below the existing ground surface. The upper layer of mostly loose sands is underlain by loose layer of sand with silt and organic particles to approximately 12± feet depth below the existing ground surface.

A very loose stratum of sandy silt with shell fragments was found in all the three borings below 12± feet to approximately 18 feet depth. This very weak stratum is underlain by loose layers of silty sands with shells to approximately 22± feet depth.

The test boring B-1 encountered a stiff layer of sandy clay between 22± feet and 27± feet depth range, but the test borings B-2 and B-3 encountered loose and medium layer of clayey sand in this depth range.

Below 27± feet to the terminated depth of 40 feet, the test borings B-1 and B-2 indicated multiple erratic layers of clayey sand to very clayey sand and very sandy clay and the consistency or relative density varied from stiff to hard or very dense. The test boring B-3 also encountered similar erratic layers of clayey sand with phosphate particles below 27± feet to the terminated depth of 35 feet. In general, the stratum between 35 feet and 40 feet was mostly hard in these locations.

The ground water level was found at 3 feet 11 inches below the existing ground surface in this site. The tidal variations in the nearby waterway will influence the ground water depth in this site.

EVALUATION FOR THE FOUNDATION SUPPORT

We understand that the proposed building will be a four story masonry block/concrete structure consisting of three living levels above ground level parking. It was further indicated to us that all the suspended living level and the roof level would have concrete floors. We recommend that the proposed four story structure should be supported by a suitable pile supported grade beam pile cap system. We consider that the ground floor slab may be soil supported, (suitably well compacted to a minimum of 95% of the Modified Proctor Density) if design considerations are taken to permit separation of the floor slab from the building allowing for small differential settlement.

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We discussed the choice of using different types of piles for this project with the structural engineer. We also furnish the advantages and disadvantages of using pre-cast concrete piles over the augered cast-in-place piles in this project.

We present the evaluation for both types of piles in this report for consideration.

PRE-CAST CONCRETE PILES

We consider that typical 12 inch by 12 inch pre-cast concrete pile, driven to a depth range of 30 to 35 feet below the existing ground surface, should have a safe compressive capacity of 30 tons. A safe uplift capacity of 7 tons may be appropriate for design purposes.

It should be noted that between the depth range of 25 feet and 35 feet below the existing ground surface, intermittent layers of hard cemented clay and stiff layers of sandy clay and/or clay with silty clay lenses were found in all three of the boring locations. Such stratification of varying consistency appears to be common in this site at varying depth ranges; therefore, it is possible that resistance to driving these pre-cast concrete piles may be encountered at varying depth levels at different locations. It is therefore prudent to consider whether a driven pile is suited to this site such as this, where variable pile lengths are anticipated.

If a higher capacity piles are contemplated, we consider that a typical 14 inch by 14 inch pre-cast concrete pile driven to the same depth range of 30 to 35 feet below the existing ground surface, should have a safe compressive capacity of 35 tons. A safe uplift capacity of 8.5 tons may be appropriate for design purpose. A lateral capacity of not greater than 2 tons may be appropriate for these pre-cast concrete piles.

These piles should be driven with a suitable hammer compatible with the type of pile being driven and also taking into consideration the proximity to the nearby existing structures. An engineer's representative should verify the capacity of each pile by monitoring and recording the driving resistance during the pile driving operations. The capacity of the pile should be estimated using an appropriate pile driving formula in accordance with local building code regulations.

Prior to the start of production pile installation, a tentative pile driving resistance program (involving some test piles driven at the building area) may be computed using any of the widely used dynamic formulas, which also should be verified by at least one static load test. The static load test should be conducted on the test pile in accordance with ASTM D-1143, Standard Method. Unlike augered cast-in-place piles, pre-cast concrete piles are difficult to cut and splice, therefore the test pile program will enable a proper decision to be made regarding suitable lengths of the production piles.

AUGERED CAST-IN-PLACE PILES

We also consider that the proposed four story building can be supported by Augered Cast-in-Place piles, where there will be no impact of pile driving in the nearby area and no pile cut off process will be required. We consider that an Augered Cast-in-Place pile, 14 inches in diameter, installed to a depth range of 30± to 35± feet below the existing ground surface, should have a safe compressive capacity of 30 tons.

The test borings indicated a cohesive soil stratum of varying consistency and relative density of clayey sand between the 25 and 35 foot depth range; however the installed depth may vary outside this depth range.

The drilled and installed depth of these augered cast-in-place piles may vary in this site due to the underlying erratic soil layers. **It should be noted that the upper very weak stratum of silty soils would require a considerable amount of grout, more than the theoretical volume.**

Prior to the commencement of production pile installation, we recommend tentative test drilling and installation of a test pile in this area will be appropriate followed by a static load test conducted in accordance with ASTM D-1143.

It is further recommended that an engineer's representative monitor the installation of these augered cast-in-place piles and that pile log records be kept to verify the design capacity of each pile.

We consider that these piles develop their capacity by a combination of skin friction and end bearing. An experienced contractor should install these augered cast-in-place piles. Depending on the relative density of the underlying clayey sand soils or the consistency of the cemented clay at different locations, some variations in the installed depth of these piles should be anticipated.

IN CONCLUSION

The analysis and recommendation of this report are based on the data obtained from the three test borings conducted at the approximate locations as indicated on the enclosed sketch. Variations in stratification of soils and fluctuations in the ground water table should be anticipated. If, during construction, conditions other than those noted herein are encountered, we must be notified immediately to re-evaluate the recommendations of this report, and make changes and/or adjustments, if necessary.

We appreciate the opportunity of providing this service to you. Should you have any questions regarding this report, or if we may be of further assistance to you on this project or any other, please contact our office.

Respectfully submitted,

GULF COAST TESTING LABORATORY, INC.

1/19/10

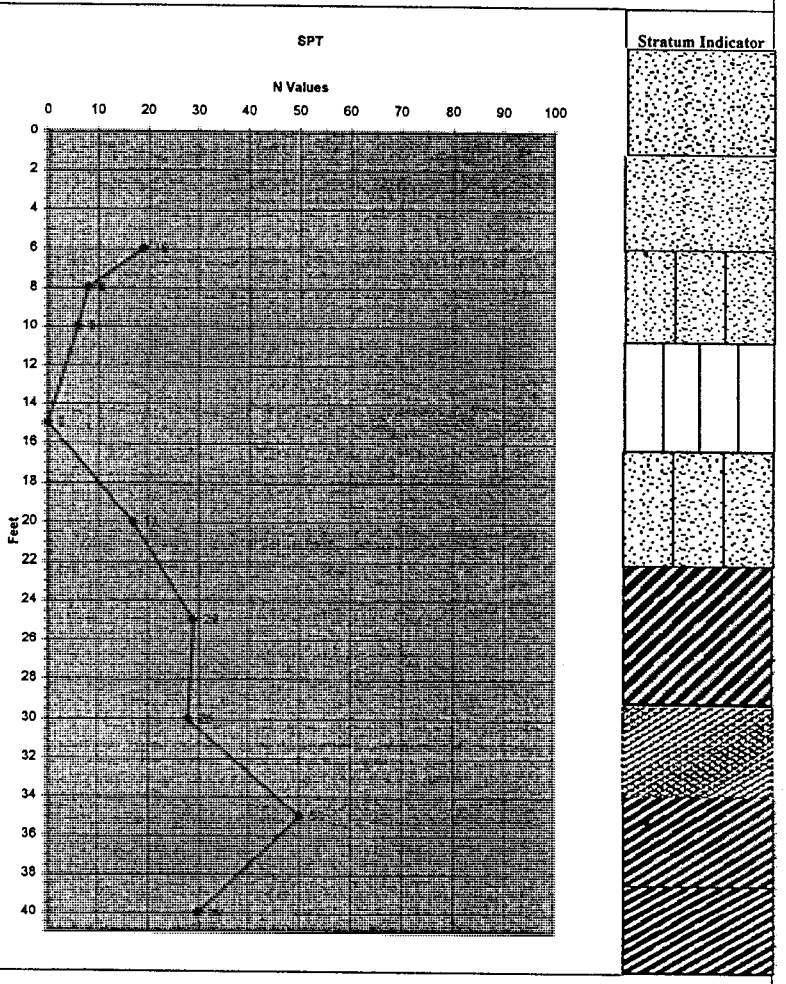
R. Gunasekaran, P.E.
Fla. License No. 20402

Gulf Coast Testing Laboratory, Inc.

5745 Park Boulevard
Pinellas Park, FL 33781
PHONE: (727) 544-4080 FAX: (727) 544-7532

Project:	**19305 Gulf Boulevard (Proposed Municipal Center)**
Client:	**Town of Indian Shores**
Date:	**1/6/2010**
Location:	**15' East x 29' North of NW Corner of Locker Room Bldg.**
Boring ID:	**B-1**

DEPTH FT.	Sample	SOIL DESCRIPTON	BLOWS PER 6			"N"
0		Brown Sand w/ Shell Frags. And Occ. Roots.	Hand Auger			
1						
2		Light Brown Sand w/ Shell				
3		Reddish Brown Sand w/ Few				
4		Rock Frags and Occ. Clay				
5		Gray Brown Sand w/ Shell Frags				
6		Med Brown Sand w/ Shell	12	10	9	19
7		Light Grayish Brown Silty Sand				
8		w/ Roots and Occ Shell. (Loose)	4	4	4	8
9						
10		Grayish Brown Silty Sand w/	2	2	4	6
11		Roots and Shell Frags. (Loose)				
12						
13						
14		Dark Gray Sandy Silt w/ Shell				
15		Frags. (Very Loose)	1	0	0	0
16						
17						
18						
19		Dark Gray Silty Sand w/ Shell				
20		Frags. (Medium)	6	8	9	17
21						
22						
23						
24		Blue Green Sandy Clay.				
25		(Very Stiff)	14	16	13	29
26						
27						
28						
29		Blue Green Very Clayey Sand.				
30		(Medium)	8	11	17	28
31						
32						
33						
34		Greenish Gray Slightly				
35		Cemented Silty Sandy Clay.	50/5"			50
36		(Hard)				
37						
38						
39		Green Silty Clay. (Hard)				
40			11	14	16	30



Boring Terminated @ 40'

Remarks	Material descriptions are based on visual observations and not laboratory test procedures. The materials between the sampling elevations may vary. Any recommendations, solutions, or other representations are based on the available information and subject to change if other materials are encountered during the installation of any foundation systems developed from this information.

Lab #	**16408**	**Method of Sampling:**	*ASTM D-1586*		
Ground Water Depth:	**HA 47"**	**Hammer Weight:**	*140 pounds*	**Fall:**	*30 - inches*
Length Of Casing:	N/A	**Sampler:**	*1.4" I.D. Split Spoon Sampler*		

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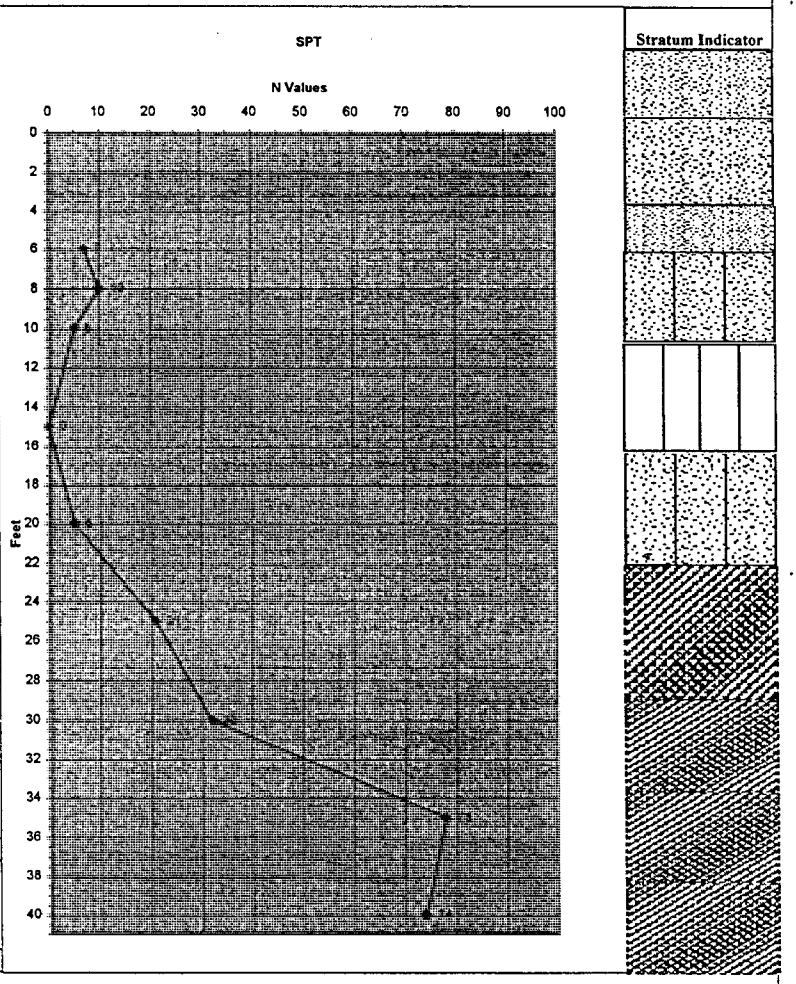
Project:	**19305 Gulf Boulevard**
Client:	**Town of Indian Shores**
Date:	**1/6/2010**
Location:	**33' West and 3' North of N.W. Corner of Locker Room Building.**
Boring ID:	**B-2**

DEPTH FT.	Sample	SOIL DESCRIPTON	BLOWS PER 6			"N"
0		3.75" Asphalt				
1		Limerock Base Material				
2		Brown Sand w/ Rock & Shell	Hand Auger			
3		Brown Sand w/ Shell Frags &				
4		Trace of Silt.				
5		Gray Sand w/ Shell Frags.				
6		Brown Sand w/ Decaying Roots.	4	3	4	7
7		Brown and Light Brown Sand w/				
8		Trace of Peat. (Loose)	1	3	7	10
9						
10		Grayish Brown Silty Sand w/	2	2	3	5
11		Shell Frags. (Loose)				
12						
13						
14		Dark Gray Sandy Silt w/ Shell				
15		Frags. (Very Loose)	1/12"		0	0
16						
17						
18						
19		Dark Gray Silty Sand w/ Shell				
20		Frags. (Loose)	5	3	2	5
21						
22						
23						
24		Greenish Gray Very Clayey				
25		Sand w/ piece of Phosphate.	8	10	11	21
26		(Very Stiff)				
27						
28						
29		Grayish Green Very Sandy Clay.				
30		(Hard)	11	16	16	32
31						
32						
33						
34		Green Sandy Clay.				
35		(Hard)	17	28	50	78
36						
37						
38		Green Very Clayey Sand.				
39		(Dense)				
40			12	24	50	74



Boring Terminated @ 40'

Remarks	Material descriptions are based on visual observations and not laboratory test procedures. The materials between the sampling elevations may vary. Any recommendations, solutions, or other representations are based on the available information and subject to change if other materials are encountered during the installation of any foundation systems developed from this information.

Lab #	16408		**Method of Sampling:**	*ASTM D-1586*	
Ground Water Depth:	47"		**Hammer Weight:**	*140 pounds*	**Fall:** *30 - inches*
Length Of Casing:	N/A		**Sampler:**	*1.4" I.D. Split Spoon Sampler*	

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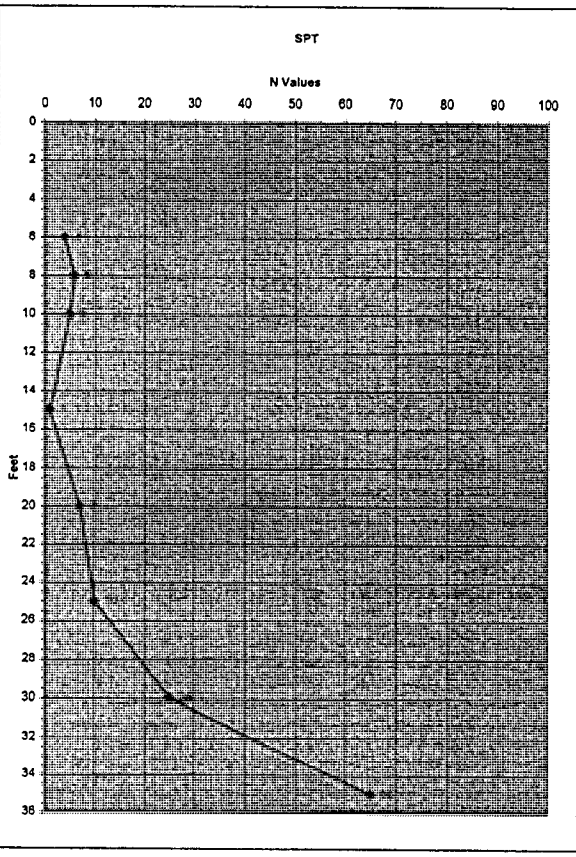
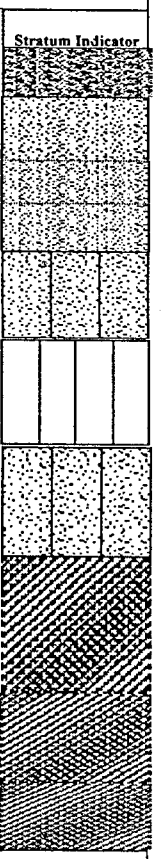
Project:	**19305 Gulf Boulevard**
Client:	**Town of Indian Shores**
Date:	**1/6/2010**
Location:	**21' West and 23' South of S.E. Corner of Locker Room Building**
Boring ID:	**B-3**

DEPTH FT.	Sample	SOIL DESCRIPTON	BLOWS PER 6 INCHES			"N"
0		3.75" Asphalt				
1		8" Tan Shell Base.				
2		Reddish Brown Sand w/ Rock	Hand Auger			
3		Reddish Brown Sand w/ Few				
4		pieces of Rock and Shell Frags.				
5		Dark Brown and Gray Sand w/				
6		Trace of Peat. (Very Loose)	1	2	2	4
7		Gray Sand w/ Brown Sand				
8		Lenses & Roots. (Loose)	2	2	4	6
9						
10		Grayish Brown Silty Sand w/	2	3	2	5
11		Shell Frags. (Loose)				
12						
13						
14		Dark Gray Sandy Silt w/ Shell				
15		Frags. (Very Loose)	1	0	1	1
16						
17						
18						
19		Dark Gray Silty Sand w/ Shell				
20		Frags. (Loose)	3	2	5	7
21						
22						
23						
24		Gray Clayey Sand w/ Phosphate				
25		Nodules. (Loose)	4	5	5	10
26						
27						
28						
29		Light Gray Clayey Sand.				
30		(Very Stiff)	8	10	15	25
31						
32						
33		Gray Clayey Sand. (Very				
34		Dense)				
35			7	20	45	65





Boring Terminated @ 35'

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Lab #	**16408**		**Method of Sampling:**	*ASTM D-1586*	
Ground Water Depth:		47"	**Hammer Weight:**	*140 pounds*	**Fall:** *30 - inches*
Length Of Casing:		N/A	**Sampler:**	*1.4" I.D. Split Spoon Sampler*	

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES
ASTM Designation: D 2487 - 83
(Based on Unified Soil Classification System)

SOIL CLASSIFICATION

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[A]
Coarse-Grained Soils (More than 50% retained on No. 200 sieve)	**Gravels** More than 50% coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines[C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$[E]	GW	Well graded gravel[F]
			$Cu < 4$ and/or $1 > Cc > 3$[E]	GP	Poorly graded gravel[F]
		Gravels with Fines More than 12% fines[C]	Fines classify as ML or MH	GM	Silty gravel[F,G,H]
			Fines classify as CL or CH	GC	Clayey gravel[F,G,H]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines[D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$[E]	SW	Well-graded sand[I]
			$Cu < 6$ and/or $1 > Cc > 3$[E]	SP	Poorly graded sand[I]
		Sands with Fines More than 12% fines[D]	Fines classify as ML or MH	SM	Silty sand[G,H,I]
			Fines classify as CL or CH	SC	Clayey sand[G,H,I]
Fine-Grained Soils (50% or more passes the No. 200 sieve)	**Silts and Clays** Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean clay[K,L,M]
			PI < 4 or plots below "A" line[J]	ML	Silt[K,L,M]
		Organic	Liquid limit – oven dried / Liquid limit – not dried < 0.75	OL	Organic clay[K,L,M,N] / Organic silt[K,L,M,O]
	Silts and Clays Liquid limit 50 or more	Inorganic	PI plots onor above "A" line	CH	Fat clay[K,L,M]
			PI plots below "A" line	MH	Elastic silt[K,L,M]
		Organic	Liquid limit – oven dried / Liquid limit – not dried < 0.75	OH	Organic clay[K,L,M,P] / Organic silt[K,L,M,Q]
Highly organic soils	Primarily organic matter, dark in color and organic odor			PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

[D] Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.

[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

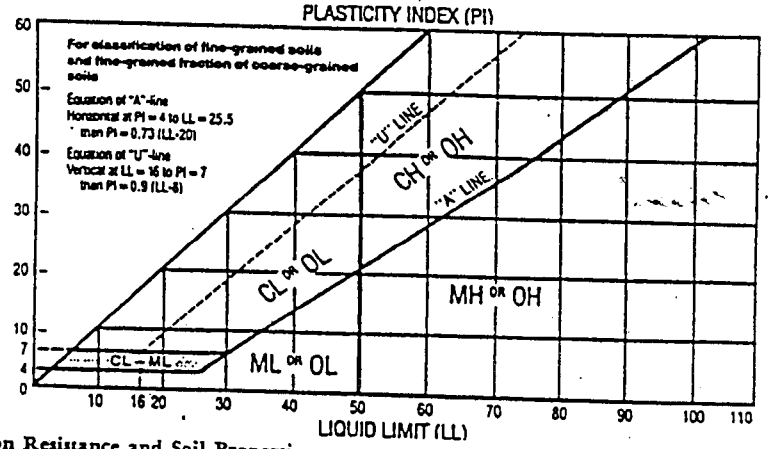
[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.

DESCRIPTIVE ADJECTIVES for COARSE and FINE GRAINED SOILS*

Descriptive Adjective	Percentage Requirements
trace	Under 5%
few	5 - 15%
little	15 - 30%
some	30 - 50%
mostly	50 - 100%

*Modified from ASTM-D 2488-84



Penetration Resistance and Soil Properties on Basis of the Standard Penetration Test

Sands (Fairly Reliable) No. of Blows per ft, N	Relative Density	Clays (Rather Unreliable) No. of Blows per ft, N	Consistency
0– 4	Very loose	Below 2	Very soft
4–10	Loose	2– 4	Soft
10–30	Medium	4– 8	Medium
30–50	Dense	8–15	Stiff
Over 50	Very dense	15–30	Very stiff
		Over 30	Hard

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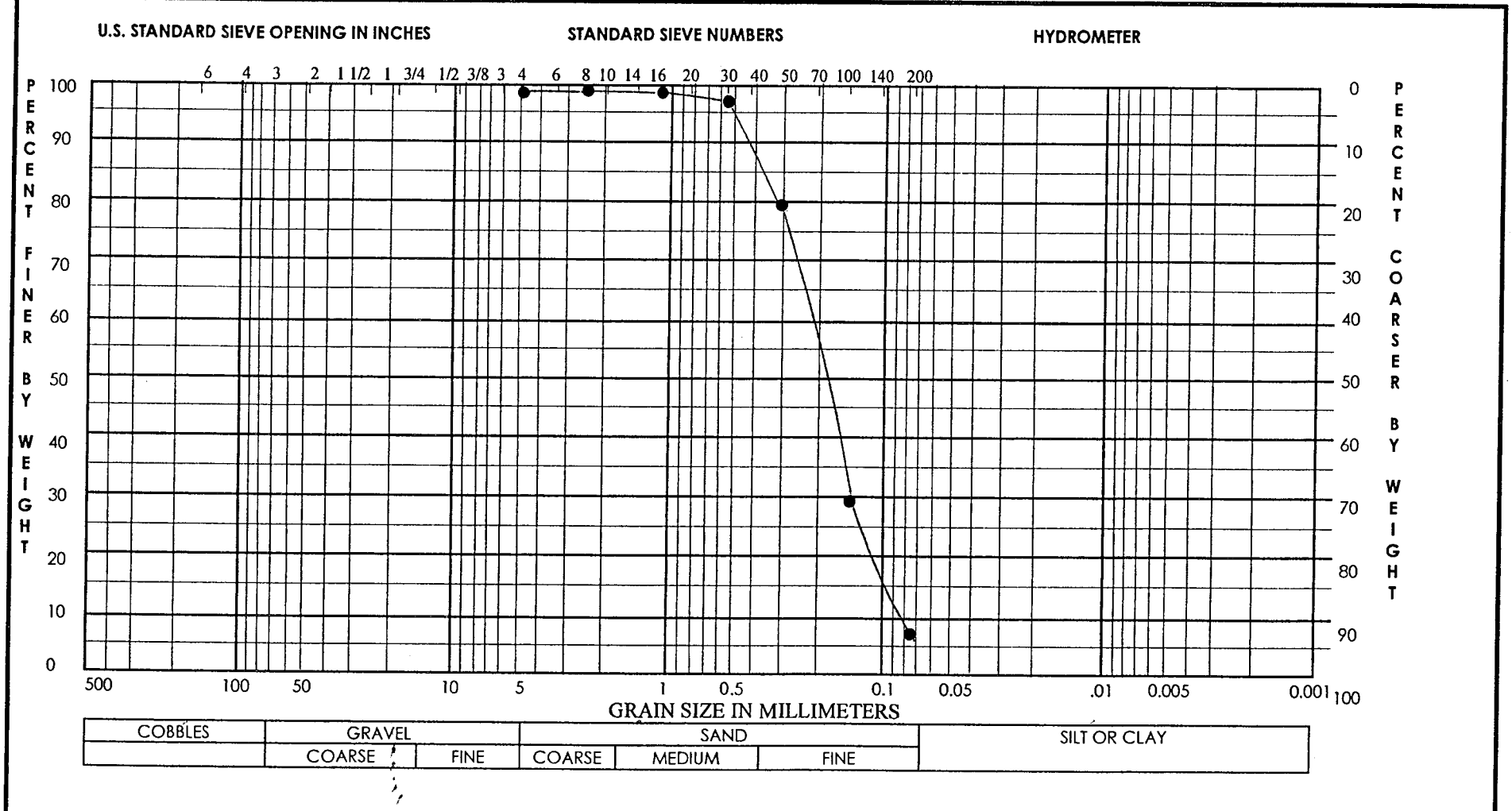
PINELLAS PARK, FL 33781
CERTIFICATE of AUTHORIZATION # 00002370
PHONE: (727)544-4080 *FAX:* (727)544-7532

GRADATION CURVES

Lab. No: 16408
Sampled By: CK
Date Sampled: 1/6/2010

Project: 19305 Gulf Boulevard, Indian Shores
Client: Town of Indian Shores
Material: Reddish Brown Sand with Few Rock Fragments and Occasional Clay Nodules

Source of Supply: On Site
Sampled From: Boring # 1, Sample # 2



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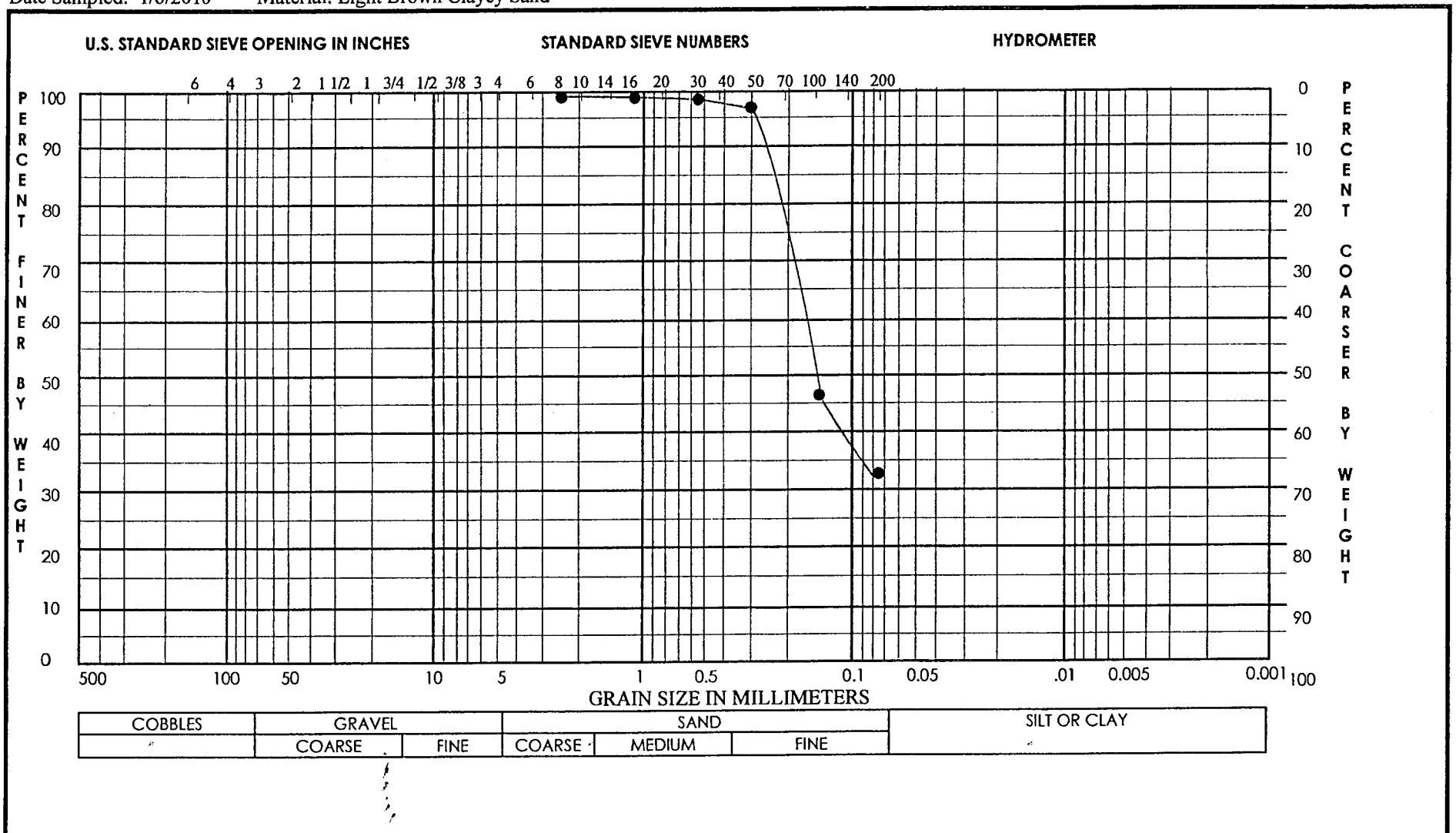
GRADATION CURVES

Lab. No: 16408
Sampled By: CK
Date Sampled: 1/6/2010

Project: 19305 Gulf Boulevard, Indian Shores
Client: Town of Indian Shores
Material: Light Brown Clayey Sand

Source of Supply: On Site
Sampled From: Boring # 1, Sample # 9



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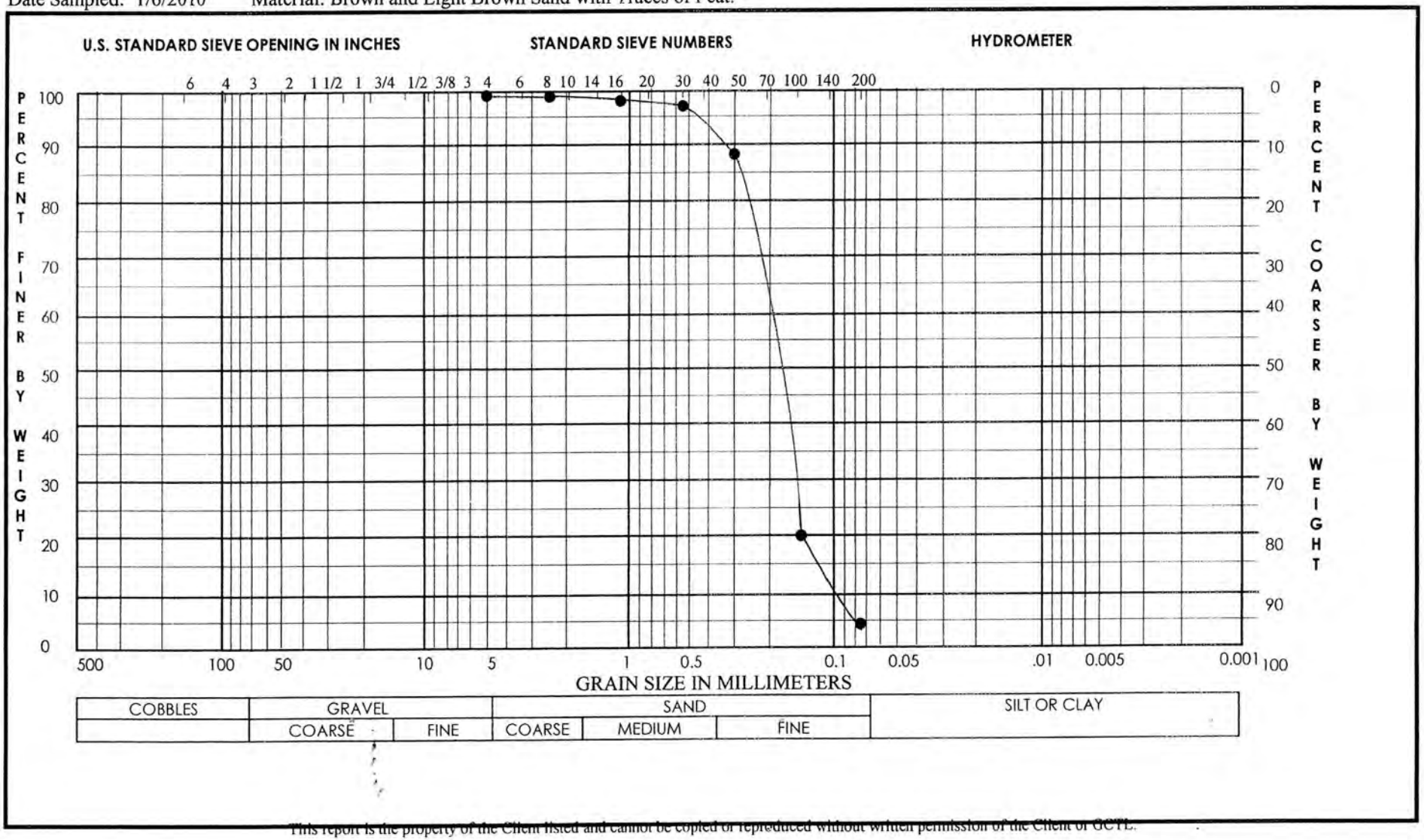
GRADATION CURVES

Lab. No: 16408
Sampled By: CK
Date Sampled: 1/6/2010

Project: 19305 Gulf Boulevard, Indian Shores
Client: City of Indian Shores
Material: Brown and Light Brown Sand with Traces of Peat.

Source of Supply: On Site
Sampled From: Boring # 2, Sample # 4



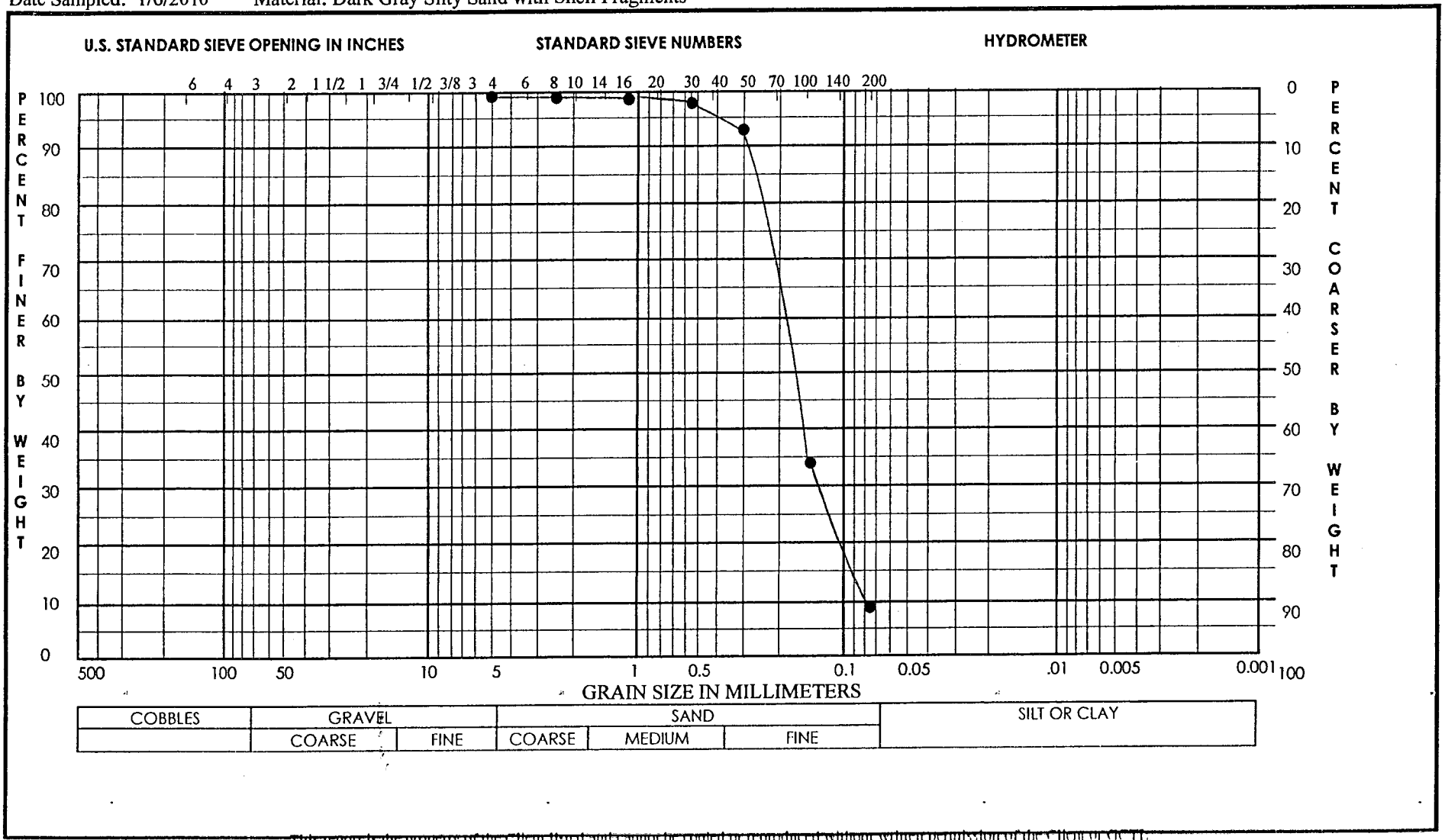
GULF COAST TESTING LABORATORY INC.
5745 PARK BLVD.
PINELLAS PARK, FL 33781
CERTIFICATE of AUTHORIZATION # 00002370
PHONE: (727)544-4080 *FAX:* (727)544-7532

GRADATION CURVES

Lab. No: 16408
Sampled By: CK
Date Sampled: 1/6/2010

Project: 19305 Gulf Boulevard, Indian Shores
Client: Town of Indian Shores
Material: Dark Gray Silty Sand with Shell Fragments

Source of Supply: On Site
Sampled From: Boring # 2, Sample # 7



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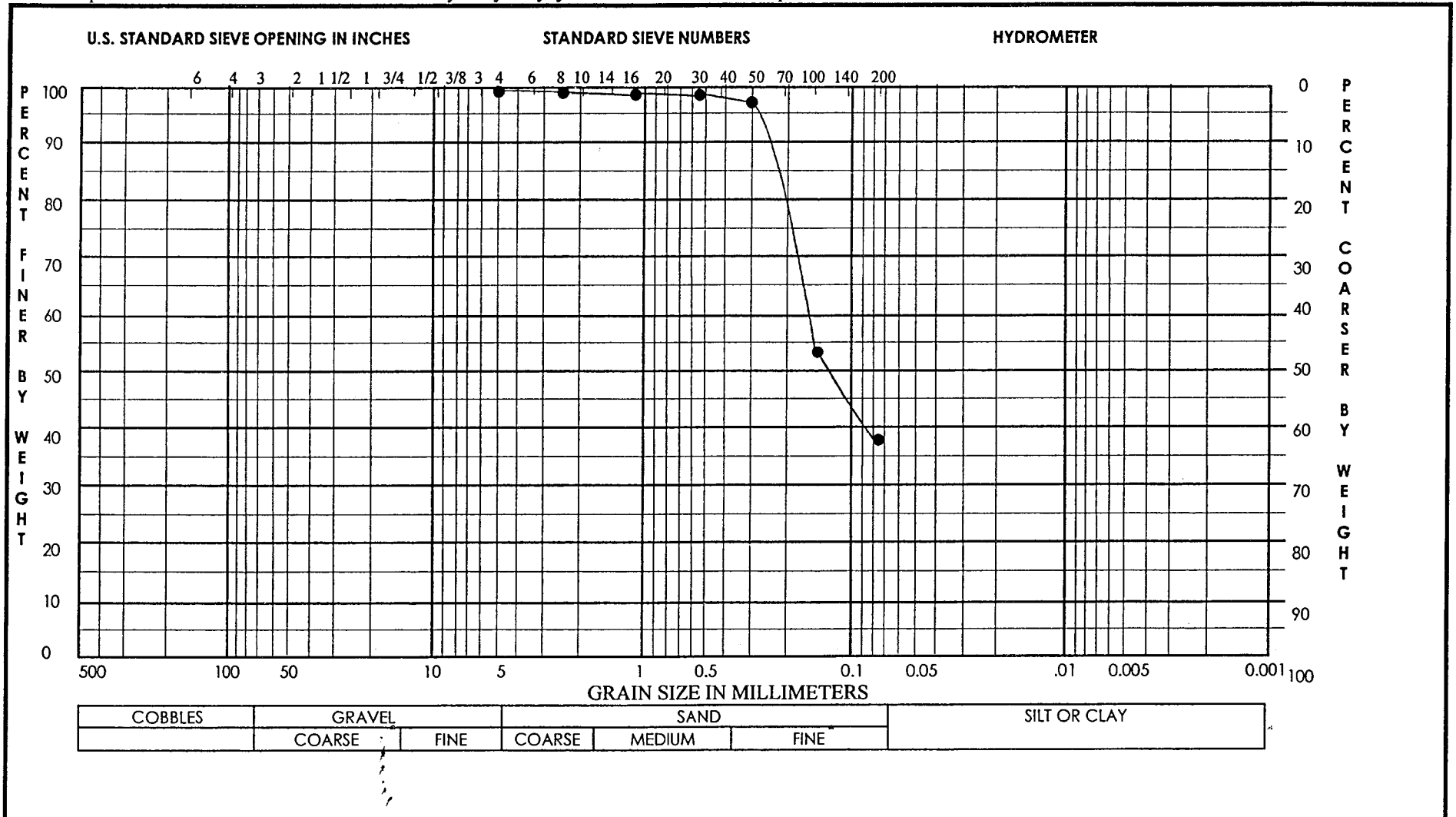
PINELLAS PARK, FL 33781
CERTIFICATE of AUTHORIZATION # 00002370
PHONE: (727)544-4080 *FAX:* (727)544-7532

GRADATION CURVES

Lab. No: 16408
Sampled By: CK
Date Sampled: 1/6/2010

Project: 19305 Gulf Boulevard, Indian Shores
Client: Town of Indian Shores
Material: Greenish Gray Very Clayey Sand with Pieces of Phosphate

Source of Supply: On Site
Sampled From: Boring # 2, Sample # 8



GULF COAST TESTING LABORATORY INC.

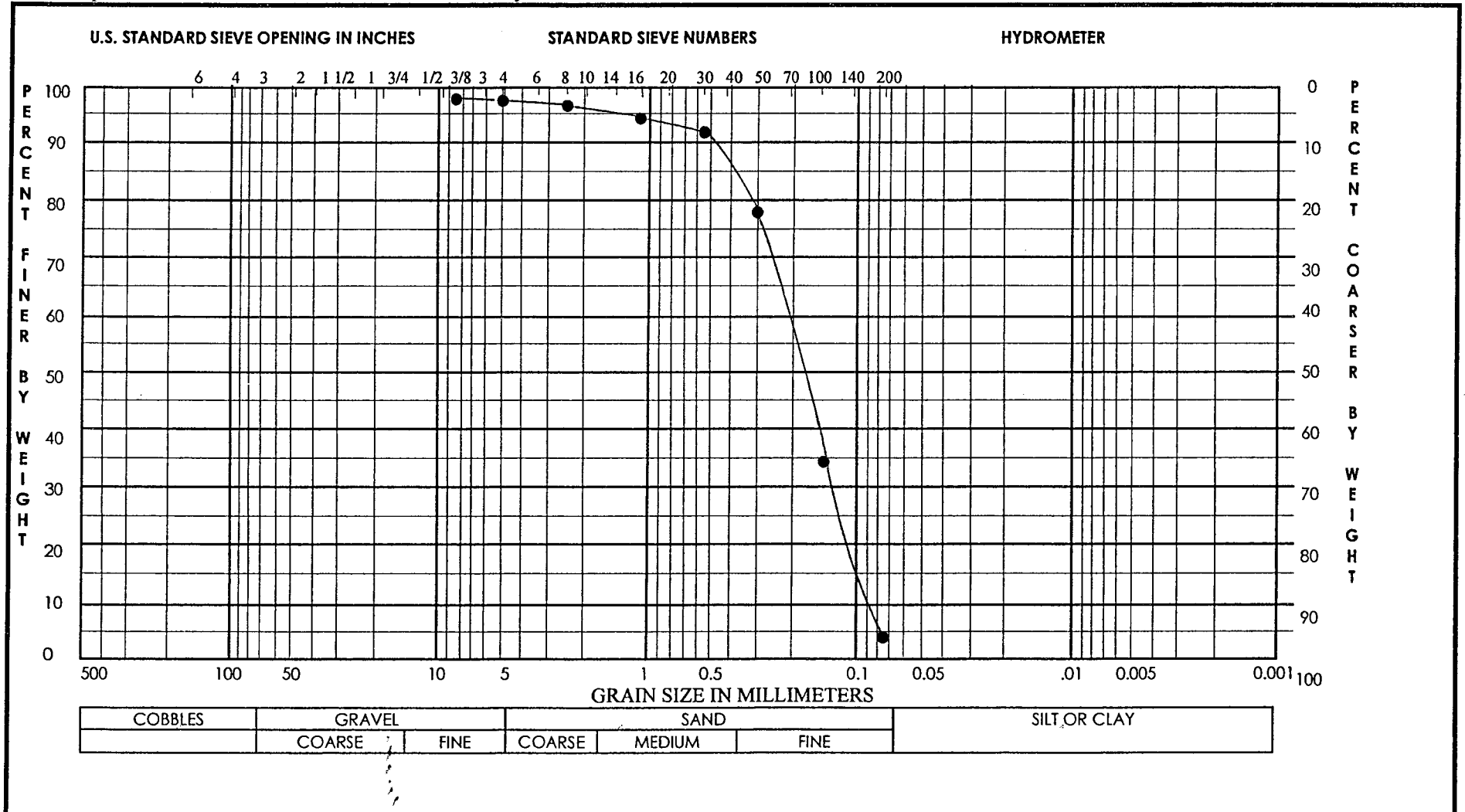
5745 PARK BLVD.
PINELLAS PARK, FL 33781
CERTIFICATE of AUTHORIZATION # 00002370
PHONE: (727)544-4080 *FAX:* (727)544-7532

GRADATION CURVES

Lab. No:. 16408
Sampled By: CK
Date Sampled: 1/6/2010

Project: 19305 Gulf Boulevard, Indian Shores
Client: Town of Indian Shores
Material: Dark Brown and Gray Sand with Traces of Peat

Source of Supply: On Site
Sampled From: Boring #3, Sample #3



GULF COAST TESTING LABORATORY INC.

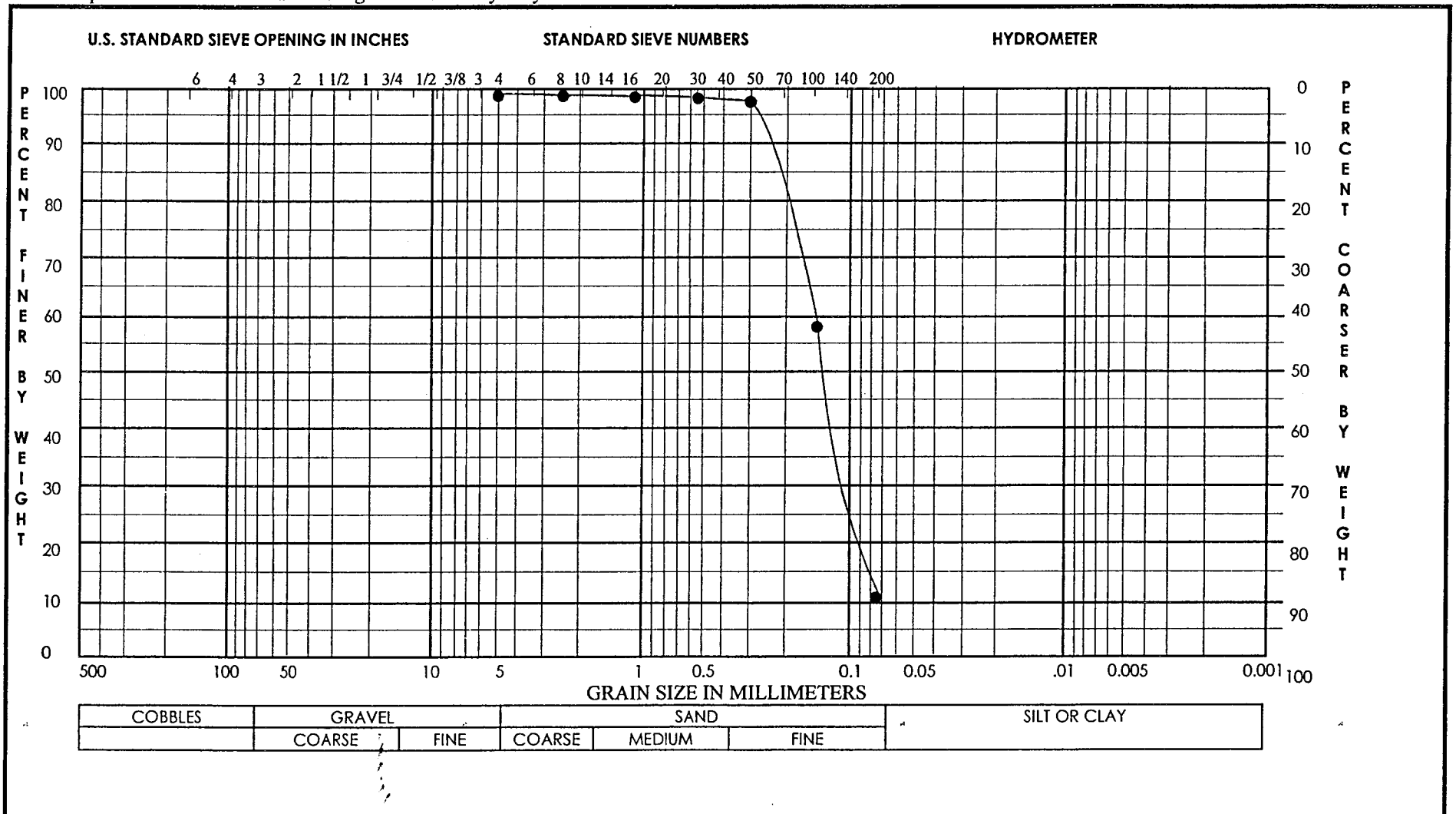
5745 PARK BLVD.
PINELLAS PARK, FL 33781
CERTIFICATE of AUTHORIZATION # 00002370
PHONE: (727)544-4080 *FAX:* (727)544-7532

GRADATION CURVES

Lab. No: 16408
Sampled By: CK
Date Sampled: 1/6/2010

Project: 19305 Gulf Boulevard, Indian Shores
Client: Town of Indian Shores
Material: Light Brown Sandy Clay

Source of Supply: On Site
Sampled From: Boring #3, Sample #10



Gulf Coast Testing Laboratory Inc.

5745 Park Blvd.
Pinellas Park, FL 33781
Phone:(727)544-4080

Moisture, Ash and Organic Matter of Peat and Organic Soils

FDOT/AASHTO T-267
ASTM D-2974

Lab No.:	16408	Date:	1/6/2010		
Field Tech:	RD	Lab Tech:	CK	Apparatus:	Muffle furnace
Project Name:				Temperature:	445+/-10C
	19305 Gulf Blvd.				
Project Location:	19305 Gulf Blvd.	Contractor			
Client:	Town of Indian Shores				
Sample Location 1 .	Boring #2			Depth Taken:	S-4
Sample Location 2.	Boring #3			Depth Taken:	S-3
Sample Description 1.:	Light Brown and Brown Sand with Traces of Peat.				
Sample Description 2.:	Dark Brown and Gray Sand with Traces of Peat.				

NOTE: All weights given below are measured in grams unless otherwise indicated.

ASTM D-2974

Moisture, Ash, and Organic Matter of Peat and Organic Soils

M%=[(Wet - Dry) x 100 / Dry		
	Sample 1	Sample 2
Time In:		
Time Out:		
Wet	105.40	119.80
Dry	77.00	95.10
Difference	28.40	24.70
Moisture%	36.88	25.97

Ash Content %=(ash x 100)/Dry)		
	Sample 1	Sample 2
Time In:	8:15am	
Time Out:		
Tare	47.26	56.03
Dry	124.20	151.00
After burn	122.46	149.05
Ash (w/o tare)	75.20	93.02
Ash %	97.74	97.95

Org. Matter%= 100.00 - Ash %		
	Sample 1	Sample 2
Time In:		
Time Out:		
Tare	47.26	56.03
100.00		
Ash %	97.74	97.95
Organic %	2.26	2.05

FDOT/AASHTO T 267
Determination of Organic Content in Soils by Loss on Ignition

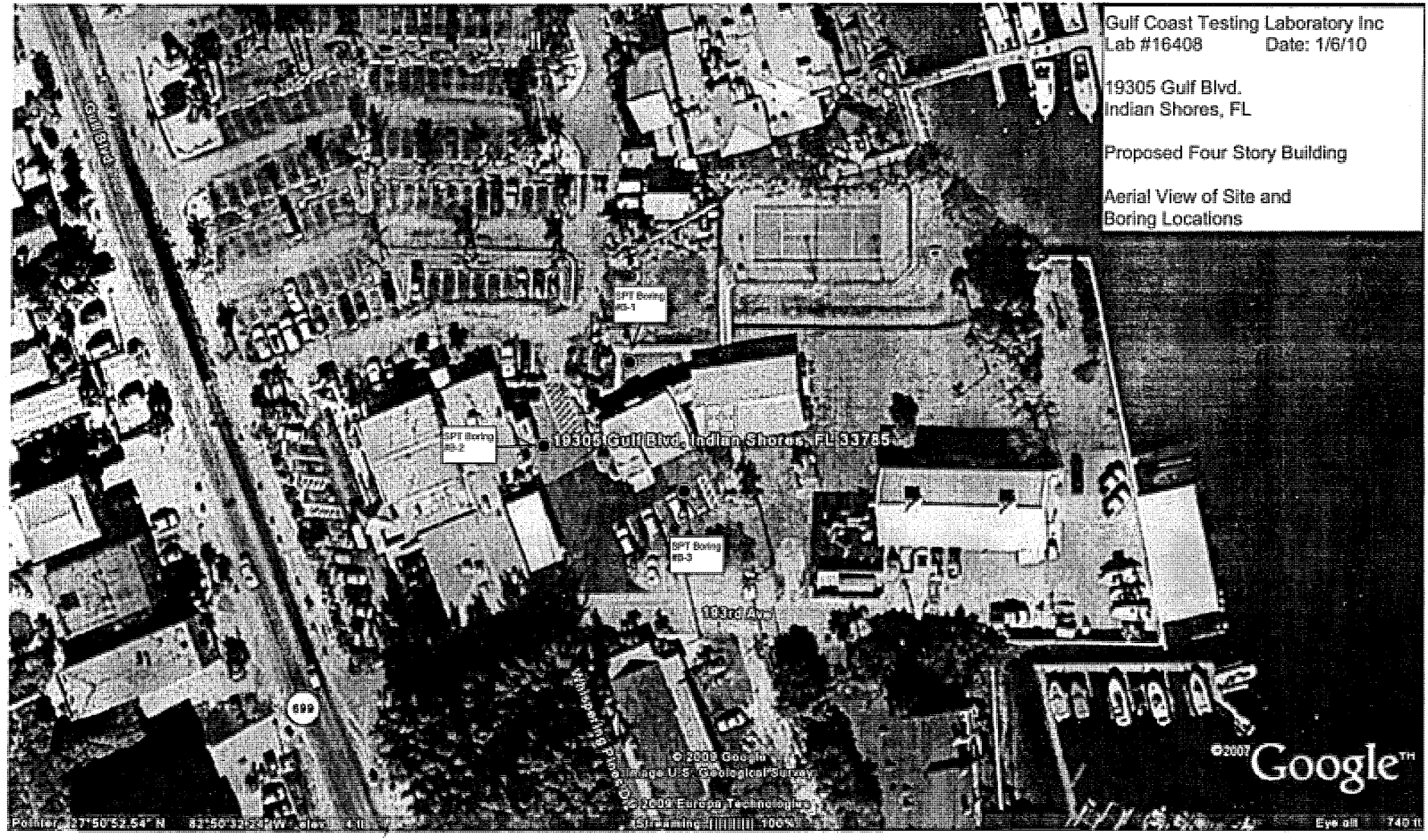
Organic % =(A-B) / (A-C) x 100

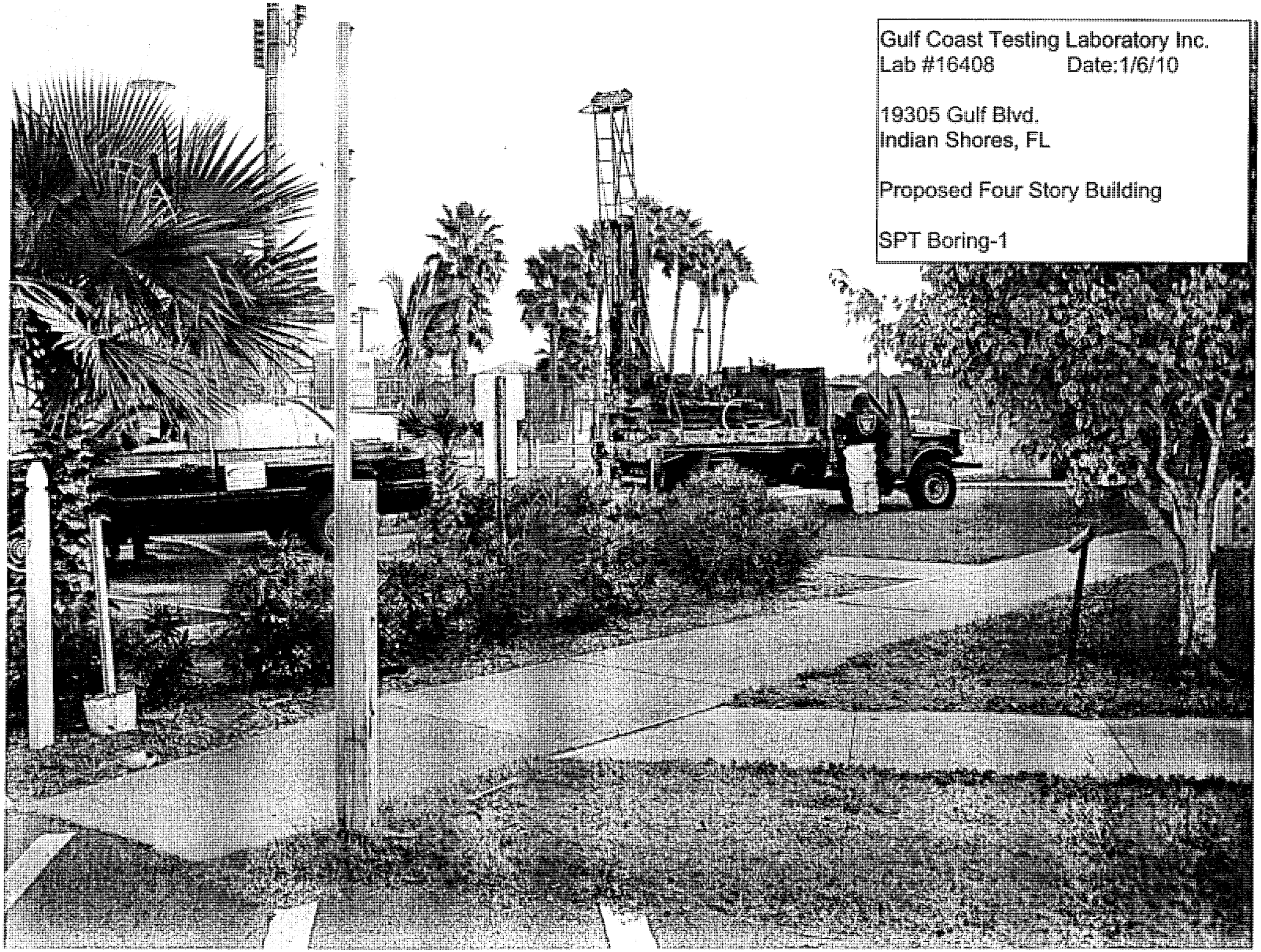
	Sample 1	Sample 2
Time In:		
Time Out:		
A=Before ignition w/ crucible	124.2	151.00
B=after ignition w/ crucible	122.46	149.05
C=Crucible	47.26	56.03
Organic %	2.26	2.05

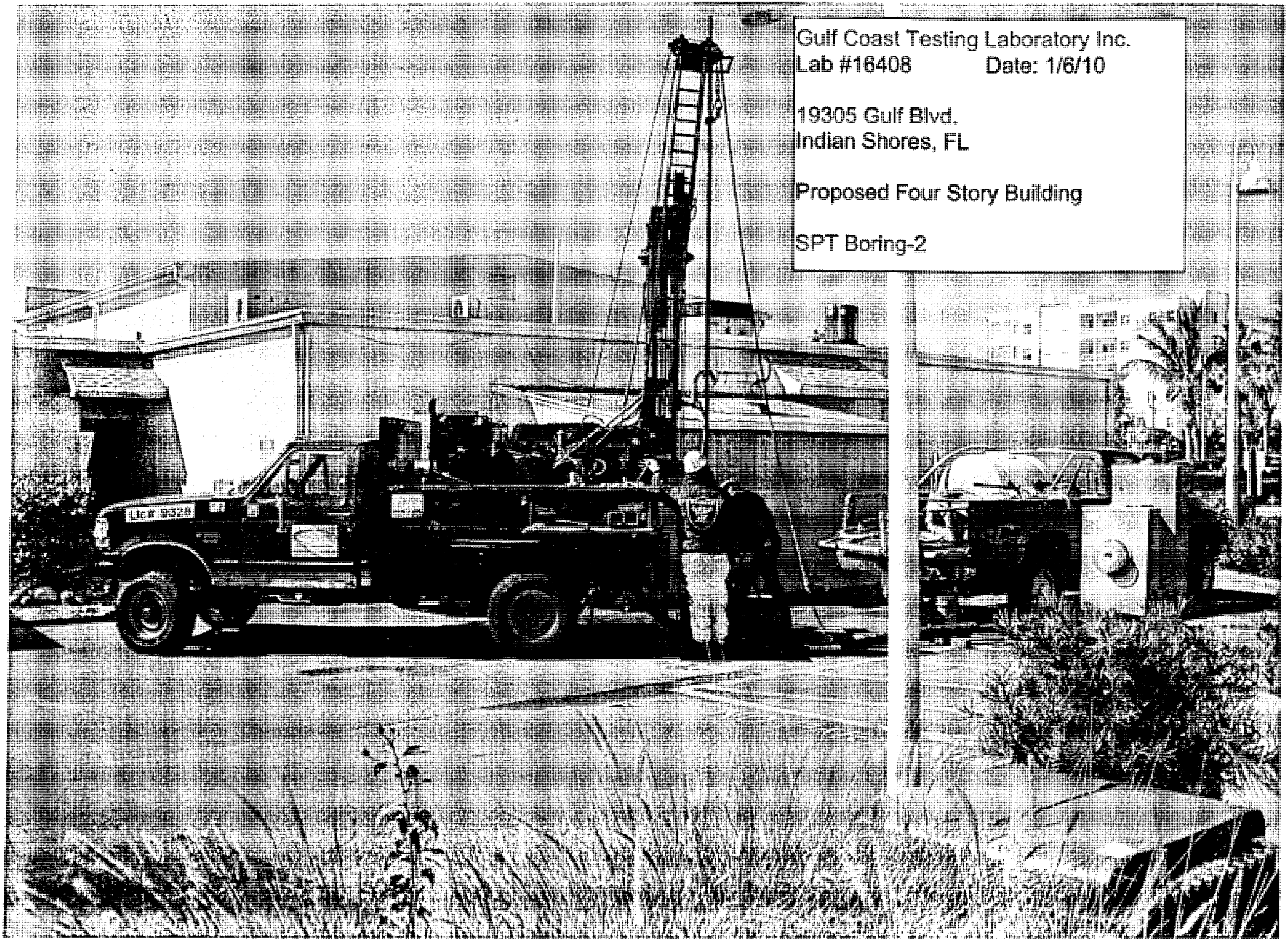
AASHTO T 11/ASTM C 117/ASTM D 422
Materials Finer than No. 200 Sieve by Washing / Particle-Size Analysis of Soils

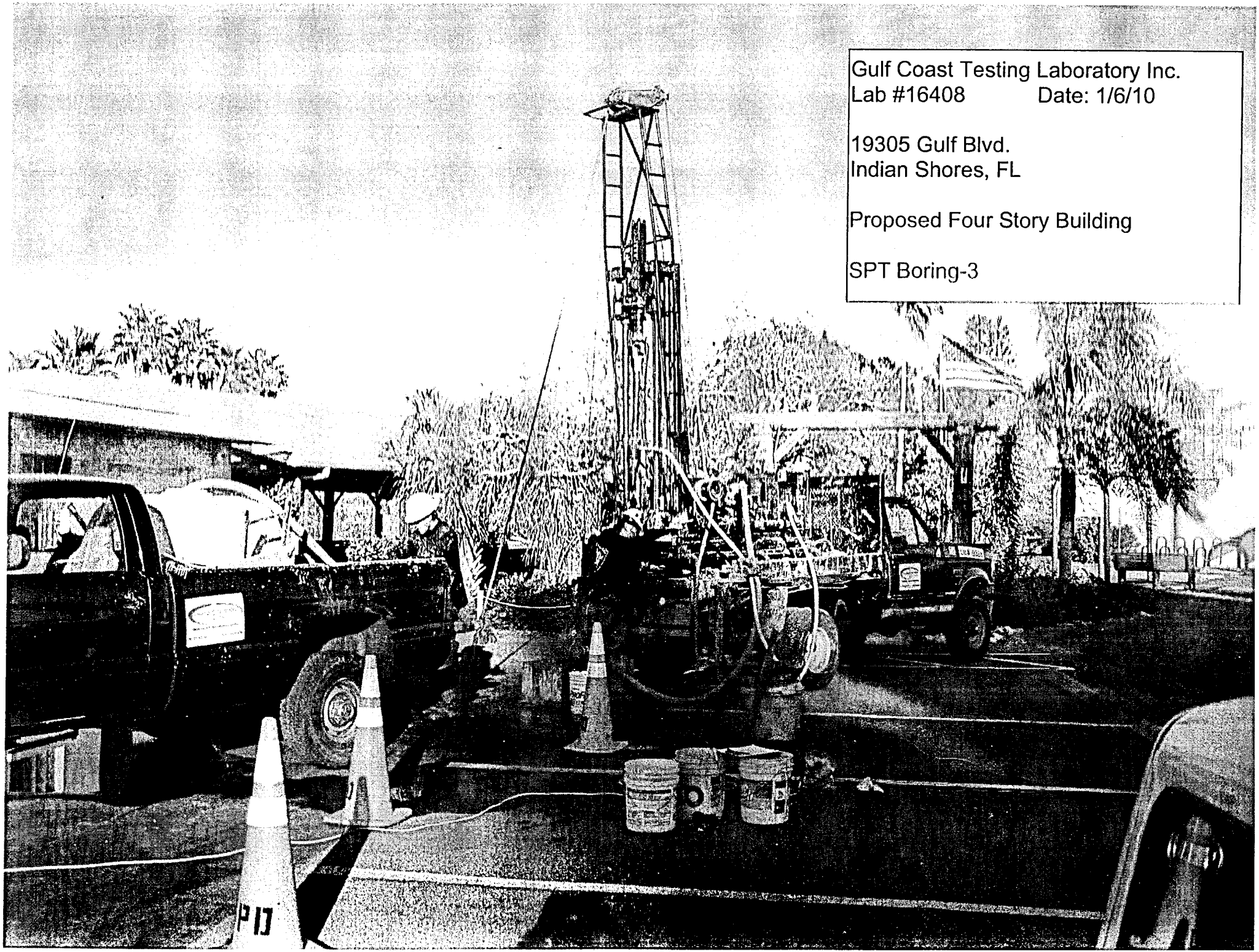
Method followed using # 230 sieve

	Sample 1	Sample 2
Original		
After Wash		
Difference		
% Passing #230	#DIV/0!	#DIV/0!


Gulf Coast Testing Laboratory Inc
Lab #16408 Date: 1/6/10
19305 Gulf Blvd.
Indian Shores, FL
Proposed Four Story Building
Aerial View of Site and
Boring Locations
SPT Boring
B-1
SPT Boring
B-2
SPT Boring
B-3
19305 Gulf Blvd, Indian Shores, FL 33785
193rd Ave
699
©2007 Google™


Gulf Coast Testing Laboratory Inc.
Lab #16408 Date:1/6/10
19305 Gulf Blvd.
Indian Shores, FL
Proposed Four Story Building
SPT Boring-1


Gulf Coast Testing Laboratory Inc.
Lab #16408 Date: 1/6/10
19305 Gulf Blvd.
Indian Shores, FL
Proposed Four Story Building
SPT Boring-2
Lic# 9328


Gulf Coast Testing Laboratory Inc.
Lab #16408 Date: 1/6/10
19305 Gulf Blvd.
Indian Shores, FL
Proposed Four Story Building
SPT Boring-3

Sharon Cornetet

From: Tyler Lohmiller <tlohmiller@certusbuilders.com>
Sent: Thursday, November 14, 2013 11:33 AM
To: Sharon Cornetet; merrill@arc-3.com
Subject: Indian Shores Pavilion - Site Specific Soil Report

Chief/Merill,

The structural plans call for the G.C./Owner to obtain a site specific soil report. Has one already been completed, the Geotechnical Report from the new Municipal Building would work to satisfy the requirement. If so, can you forward that geotechnical report to me for my records.

Thank you,

Tyler J. Lohmiller, LEED AP
Project Manager

CERTUS BUILDERS

CGC 1518176
304 S. Westland Ave
Tampa, FL 33606
904.210.2640
813.463.0266 fax
www.certusbuilders.com

emailed 11/15/13 10:39 a.m.

SCANNED
11-25-13