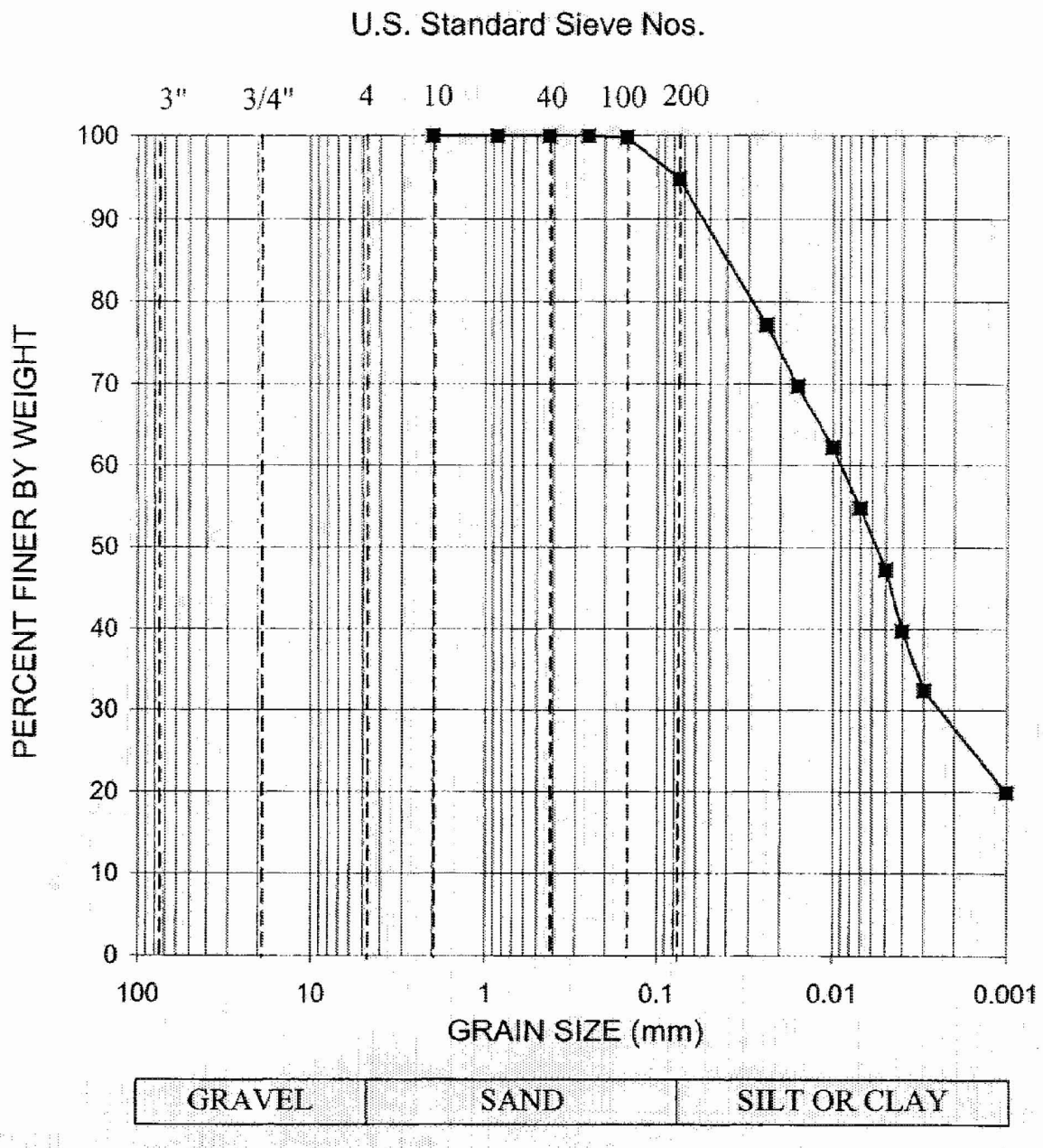


Key	Sample	Depth(ft.)	Sample Description	Class.	LL	PI
■	B-434	53.5-55.5	FAT CLAY - gray	CH	56	32
▲						
●						

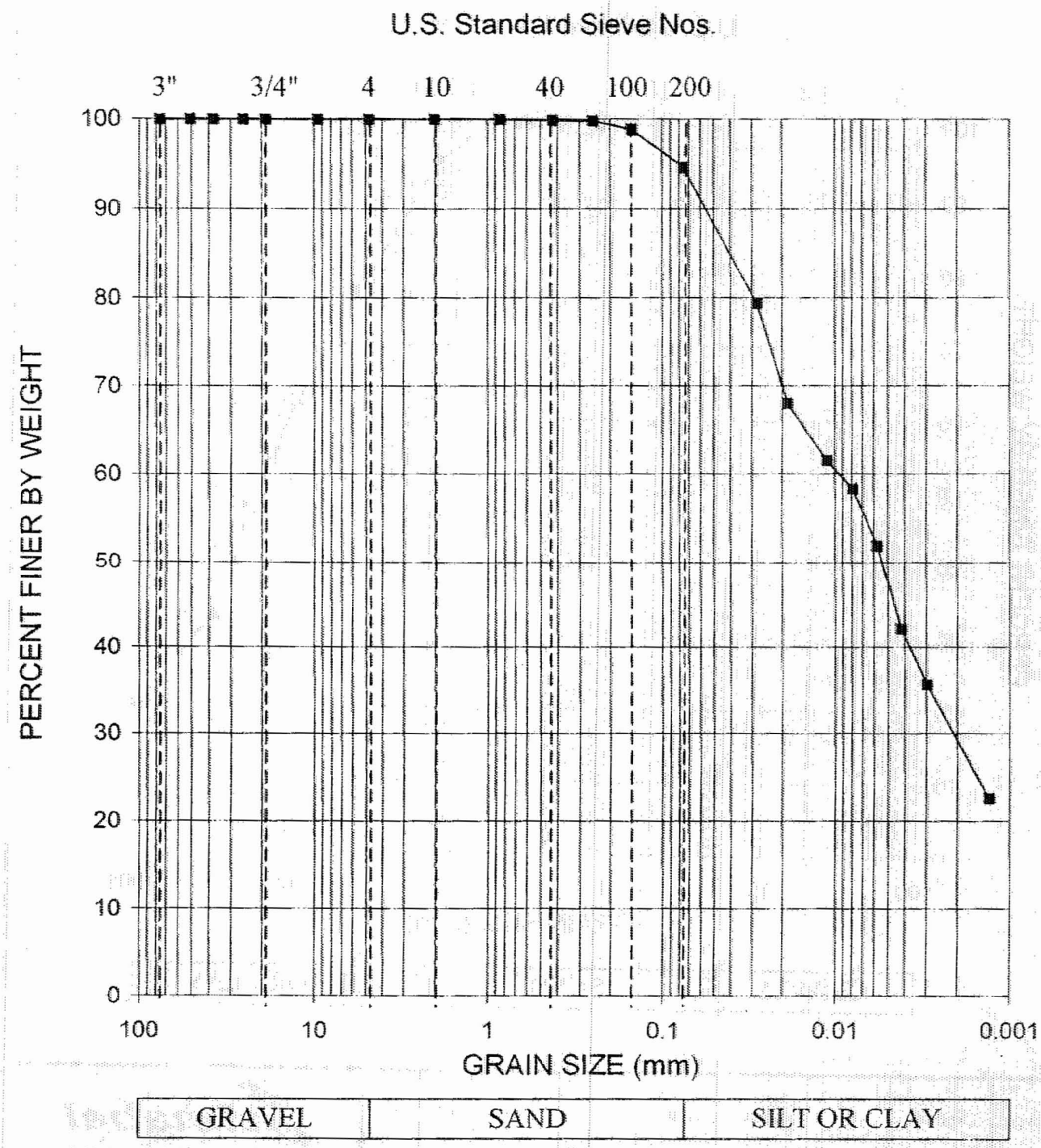
Schnabel
Schnabel Engineering

GRADATION CURVES

Project: Calvert Cliffs Nuclear Power Plant

Contract No. 06120048

Date: 11/16/06 Method: ASTM D422



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/19/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-434	58.5	FAT CLAY, trace sand, gray	CH	86	64

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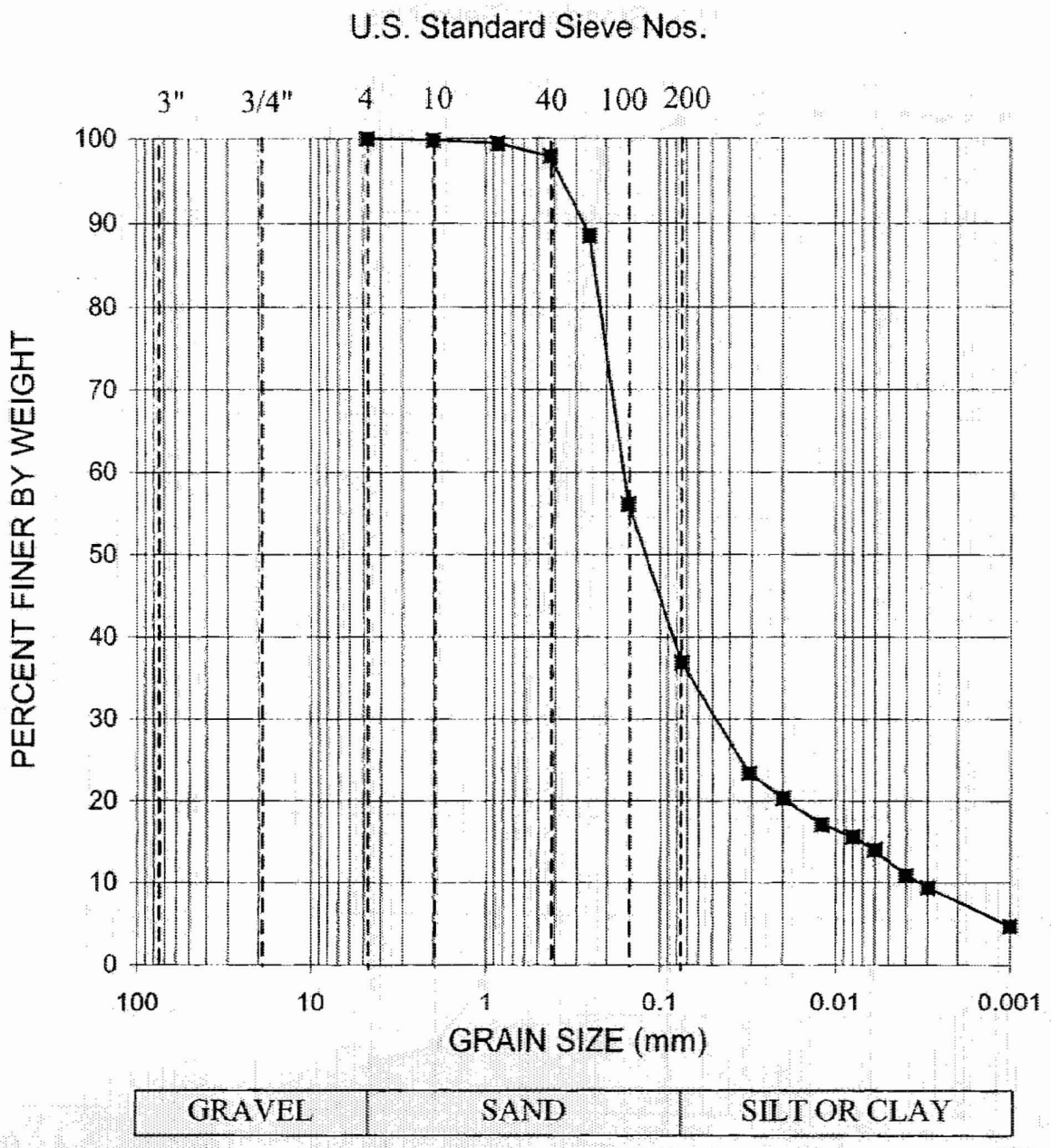

Key	Sample	Depth(ft.)	Sample Description	Class.	LL	PI
■	B-434	63.5-64.3	Fine SILTY SAND - dark gray	SM	---	NP
▲						
●						

Schnabel

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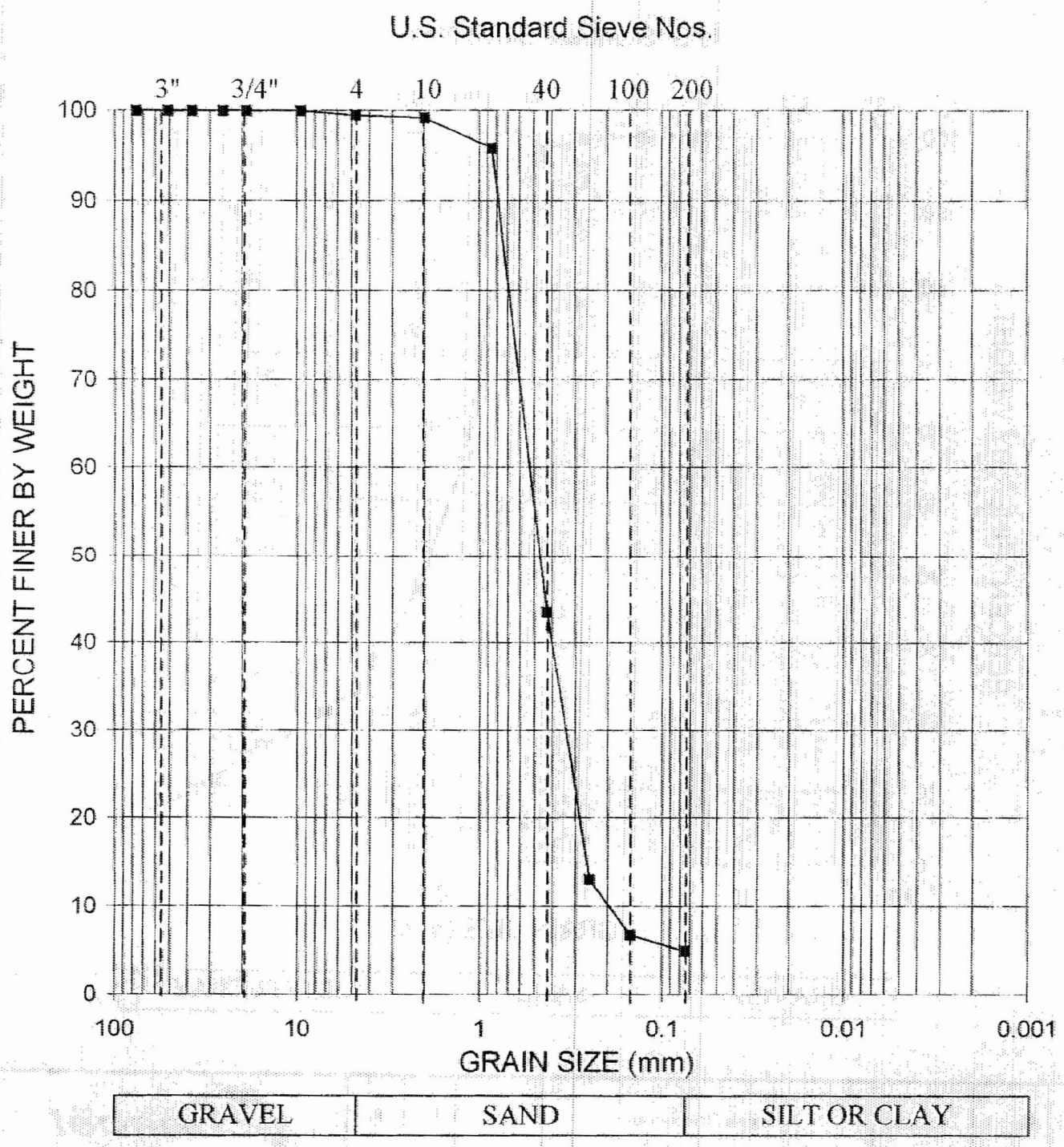
GRADATION CURVES

Project: Calvert Cliffs Nuclear Power Plant

Contract No. 06120048

Date: 11/20/06 Method: ASTM D422



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 10/4/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-436	7.5	Poorly Graded SAND, with silt, trace gravel, light brown	SP-SM		

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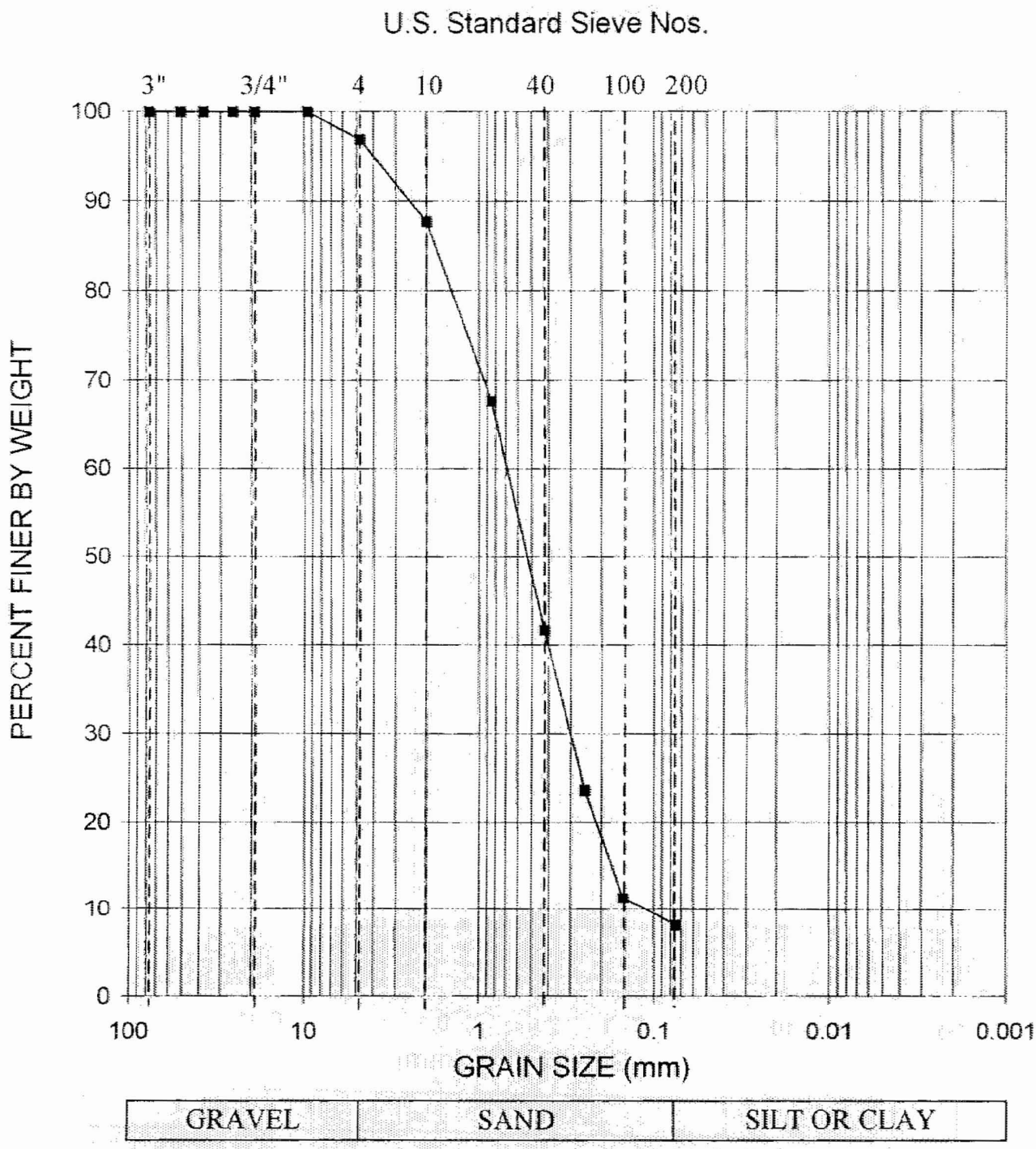
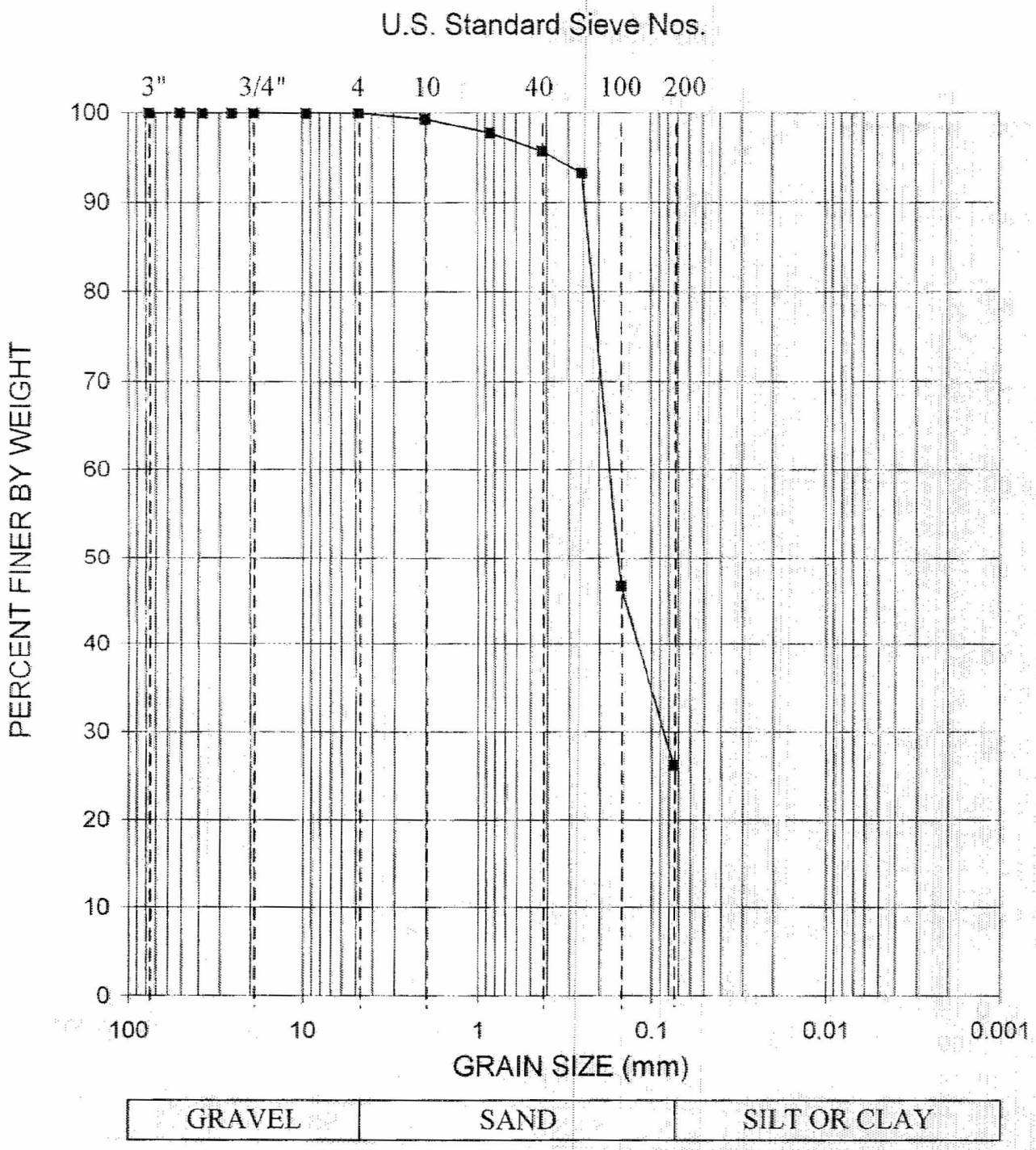


GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	10/4/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-436	23.5	Poorly Graded SAND, with silt, trace gravel, light brown	SP-SM			Schnabel Engineering



GRADATION CURVE

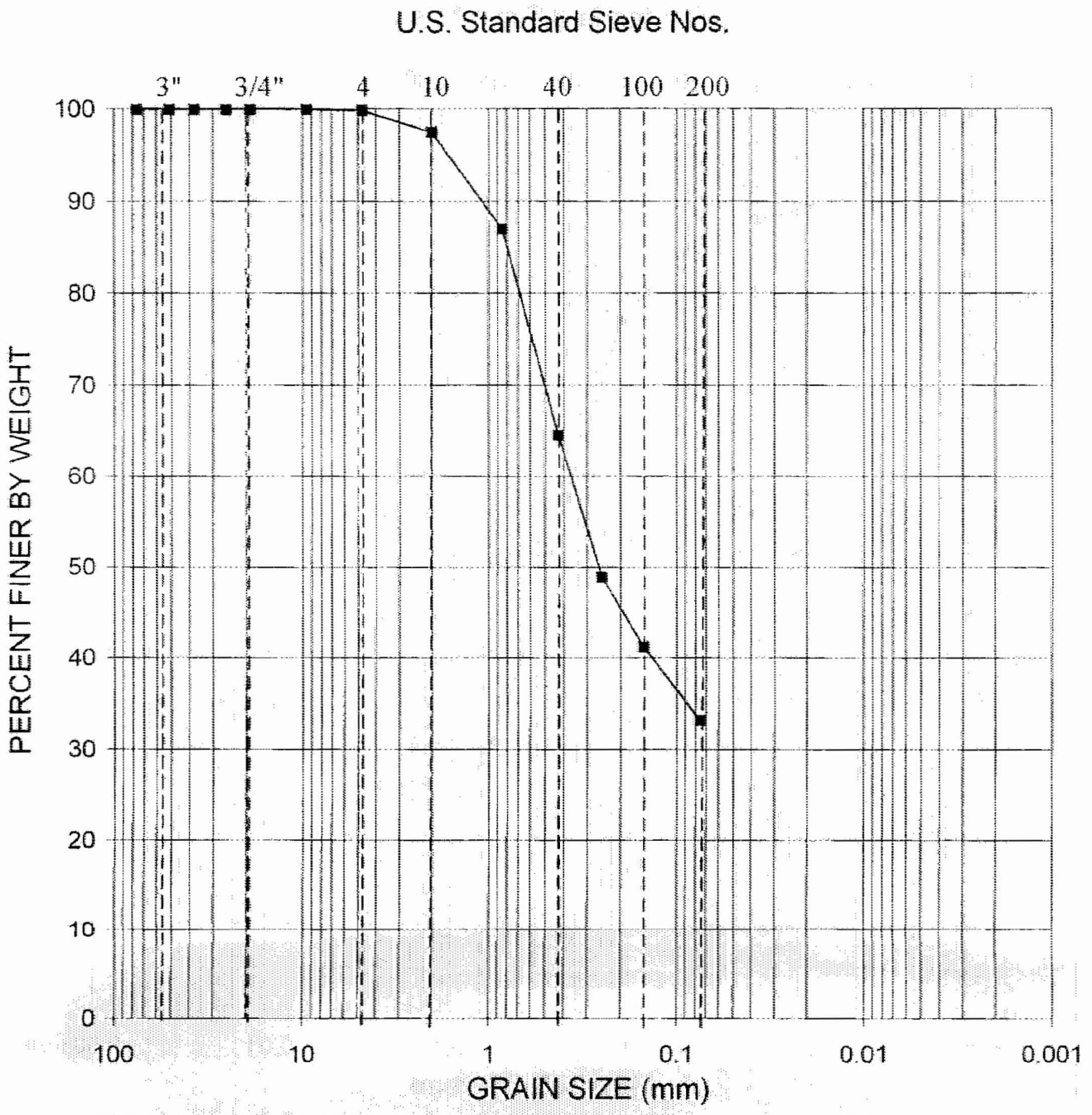
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 10/4/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-436	33.5	Silty SAND, light brown	SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	10/4/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-440	2.5	Silty SAND, green-brown	SM		

Schnabel

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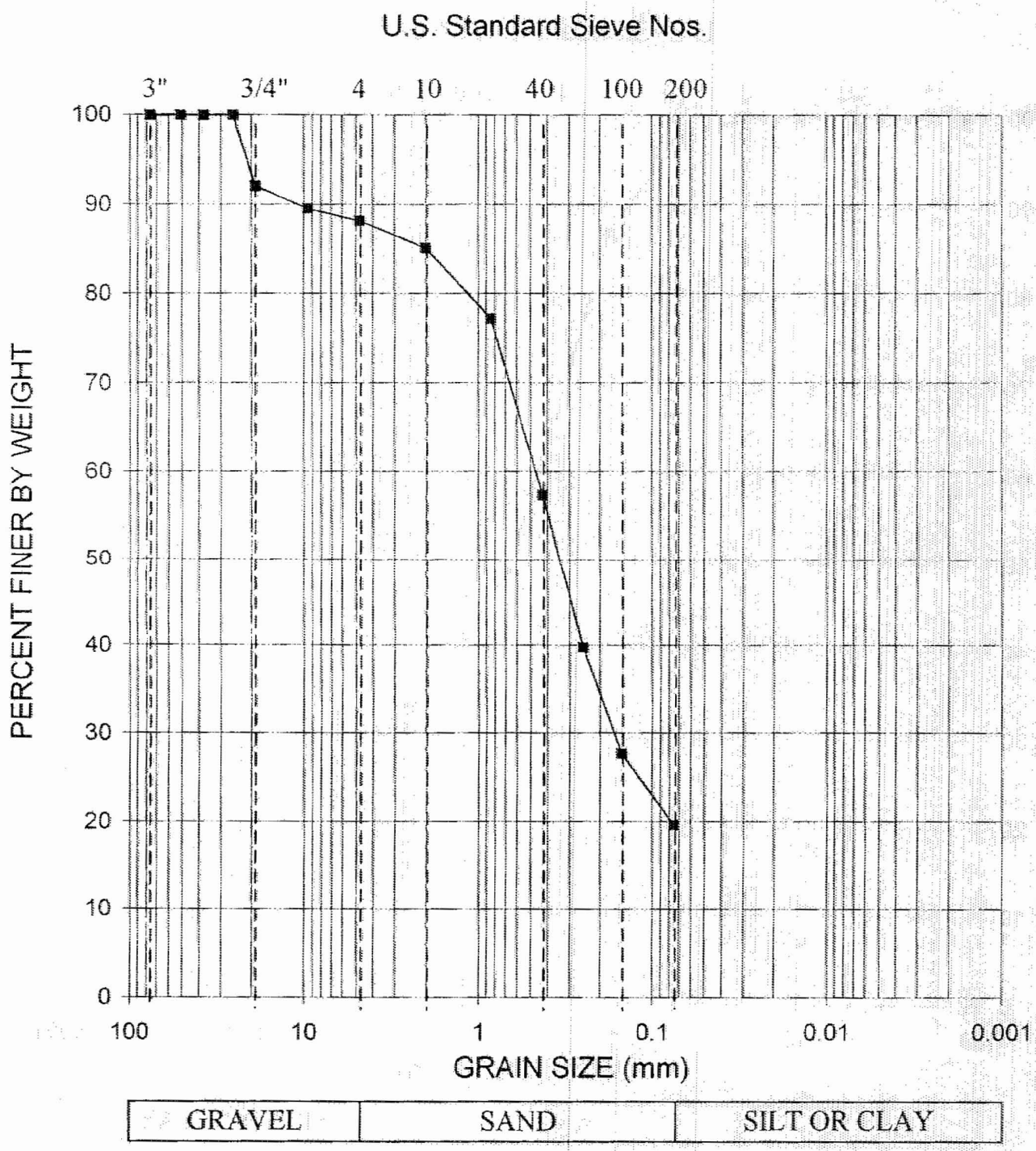

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.	06120048.00	Date:	10/4/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-440	13.5	Silty SAND, trace rock fragments and gravel, gray	SM			

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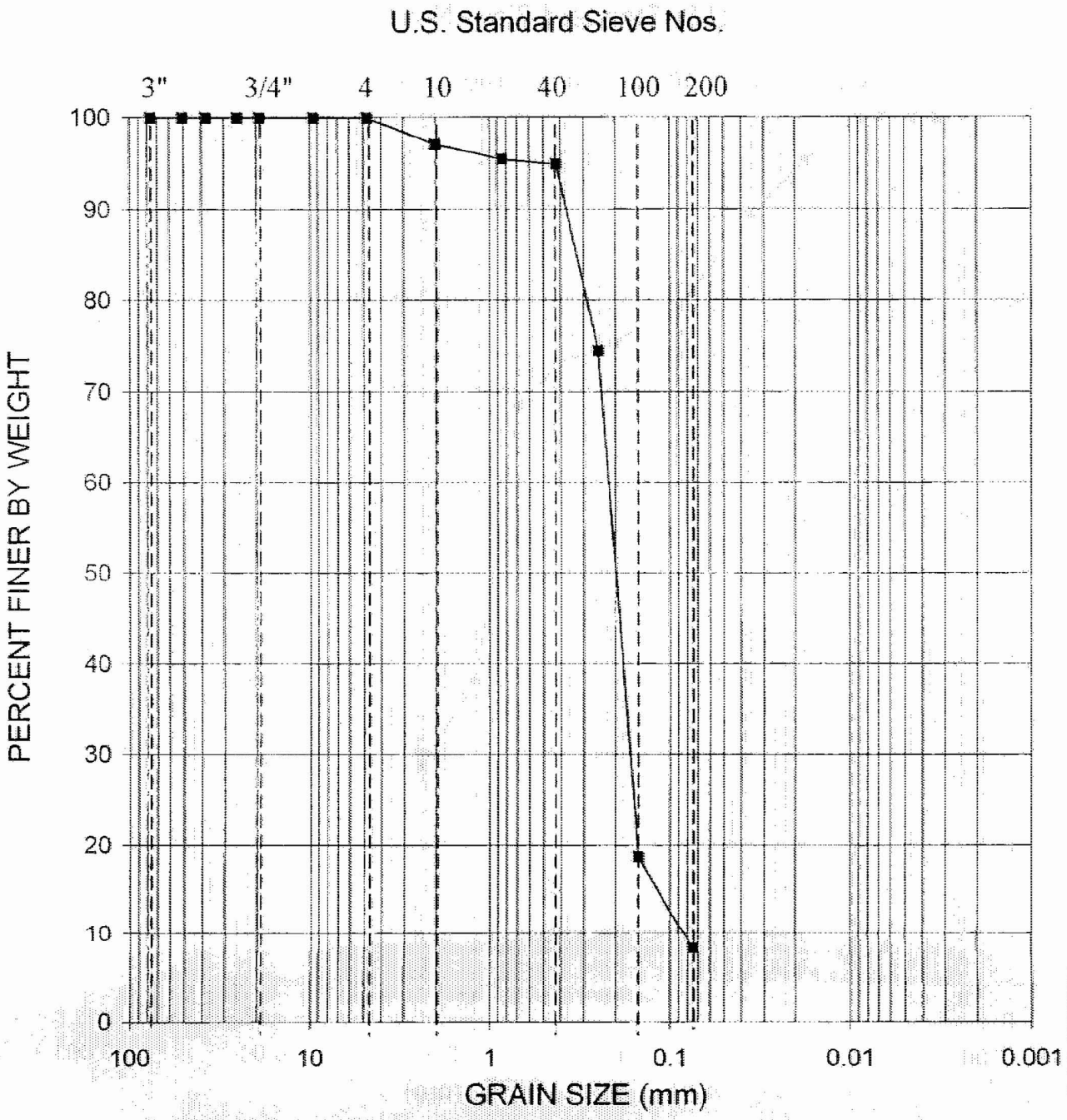


GRADATION CURVE

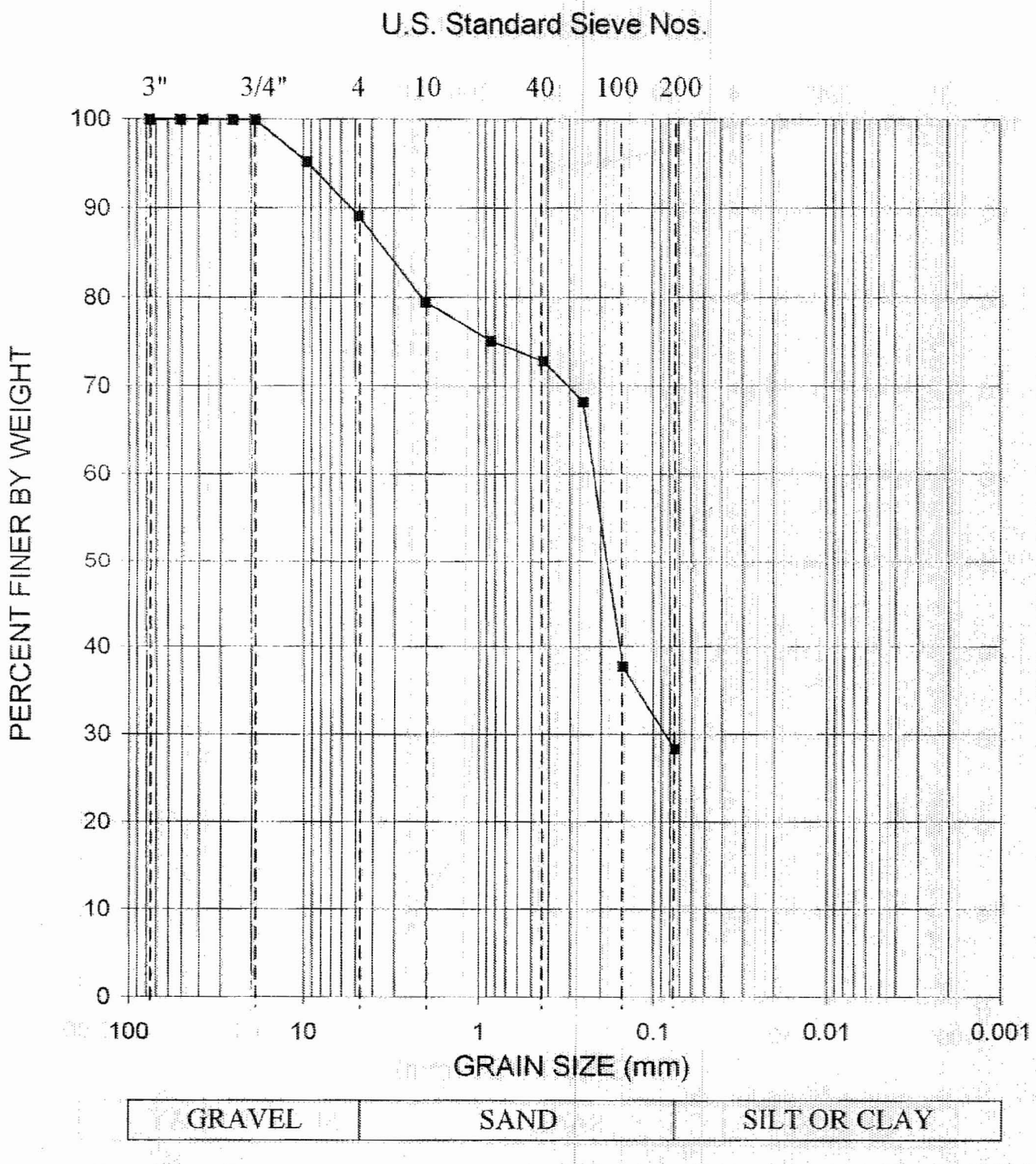
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	10/4/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-440	23.5	Poorly Graded SAND, with silt, light green	SP-SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	10/4/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-440	33.5	Silty SAND, trace shells, green	SM			

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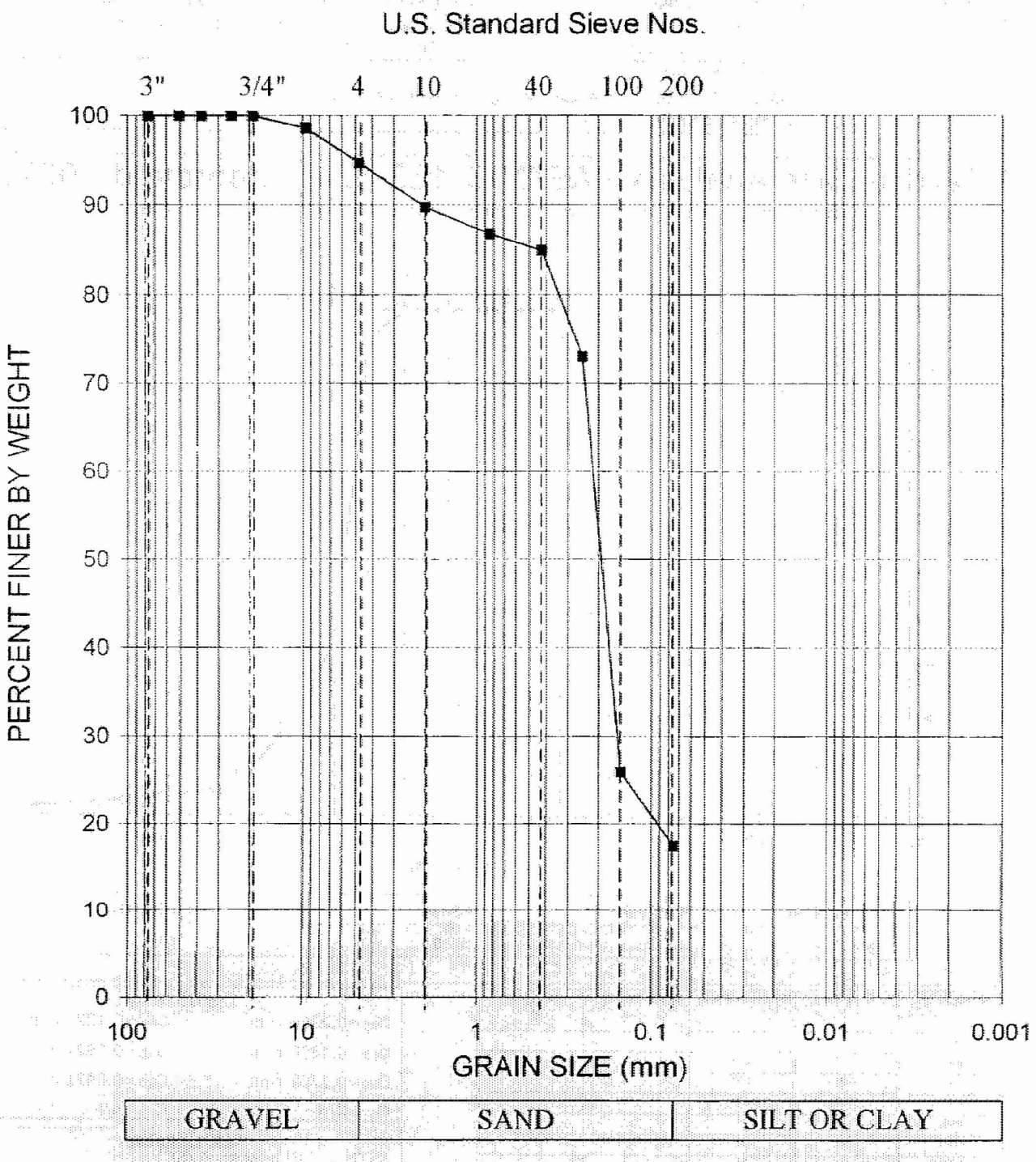
Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	10/4/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-440	43.5	Silty SAND, trace shells, green	SM		

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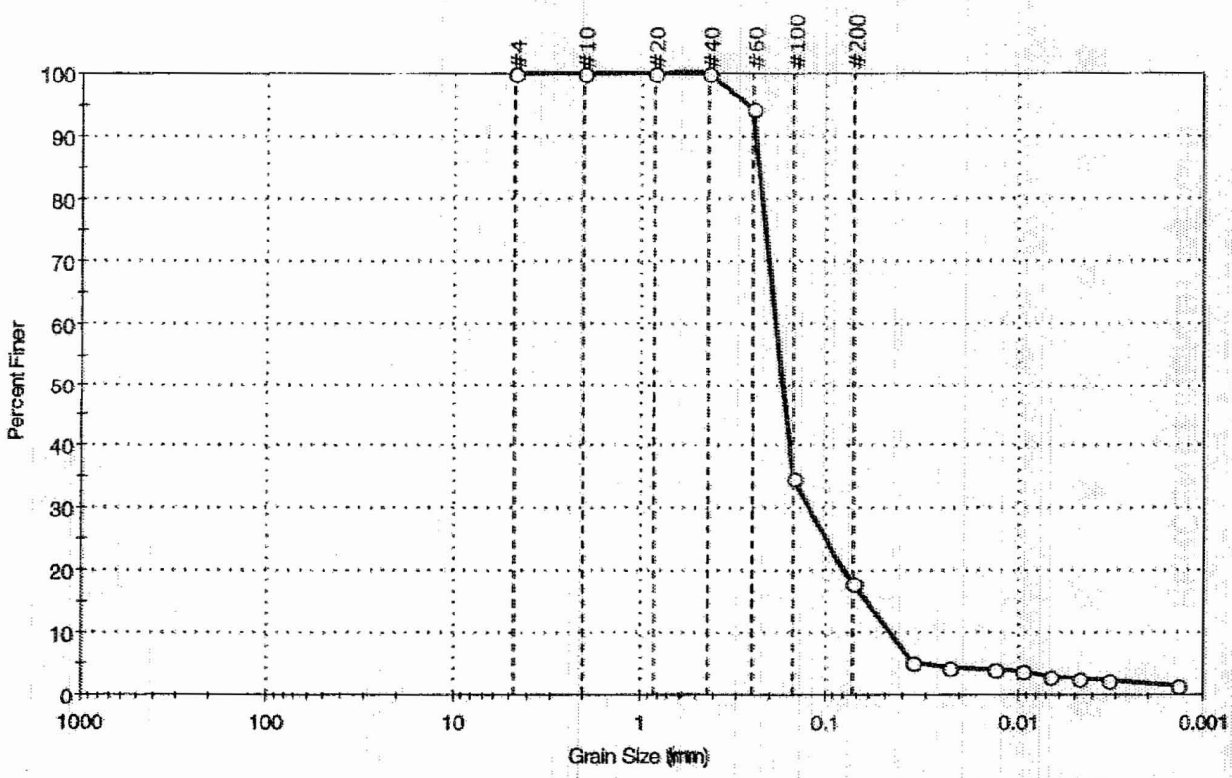
GeoTesting express
a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.				
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP				
Location:	Calvert County, MD			Project No:	GTX-6880
Boring ID:	B-440	Sample Type:	tube	Tested By:	sam
Sample ID:	S-14	Test Date:	10/25/06	Checked By:	mcm
Depth :	51-53 ft	Test Id:	101391		
Test Comment:	---				
Sample Description:	Moist, dark greenish gray clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	82.0	18.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	100		
#40	0.42	100		
#60	0.25	94		
#100	0.15	35		
#200	0.074	18		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0361	5		
---	0.0230	5		
---	0.0133	4		
---	0.0094	4		
---	0.0067	3		
---	0.0047	3		
---	0.0033	2		
---	0.0014	2		

Coefficients

D_{85} = 0.2306 mm D_{30} = 0.1225 mm
D_{60} = 0.1856 mm D_{15} = 0.0624 mm
D_{50} = 0.1702 mm D_{10} = 0.0471 mm
C_u = N/A C_c = N/A

Classification

ASTM Clayey sand (SC)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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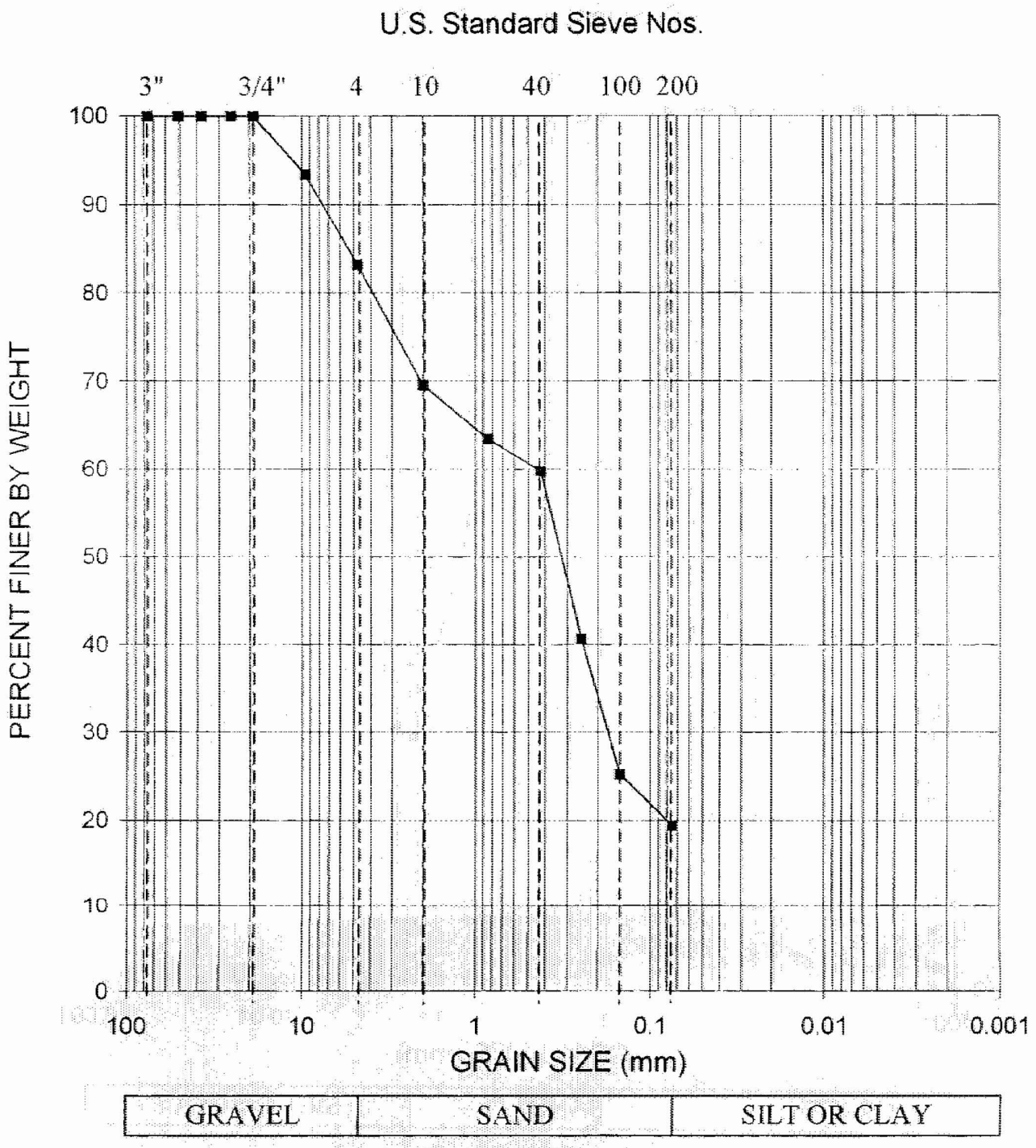


GRADATION CURVE

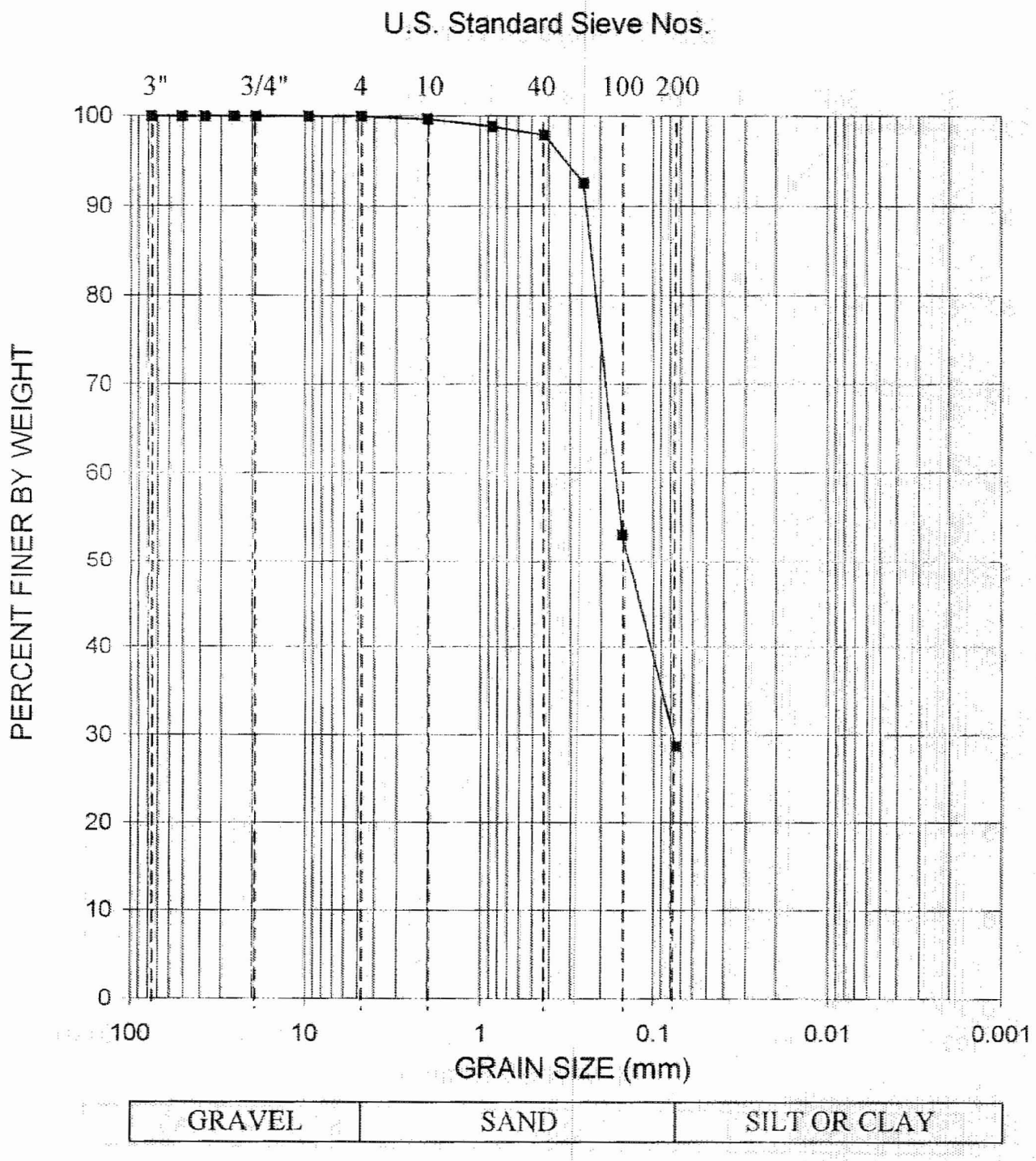
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 10/4/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-440	63.5	Silty SAND, with shells, green	SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.: 06120048.00		Date: 10/1/20[illegible]	
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-440	78.5	Silty SAND, contains shells, green	SM			Schnabel Engineering