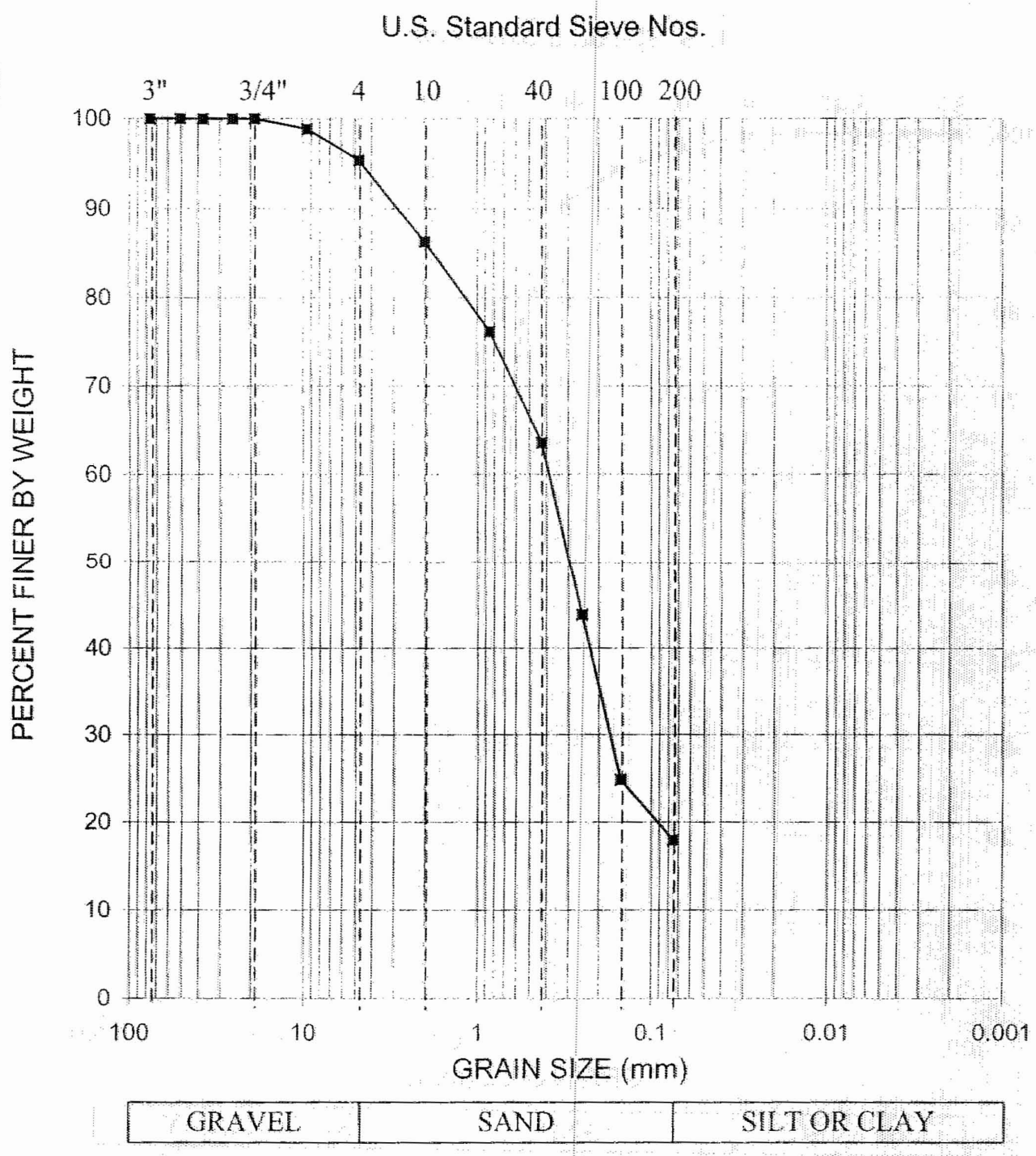


GRADATION CURVE

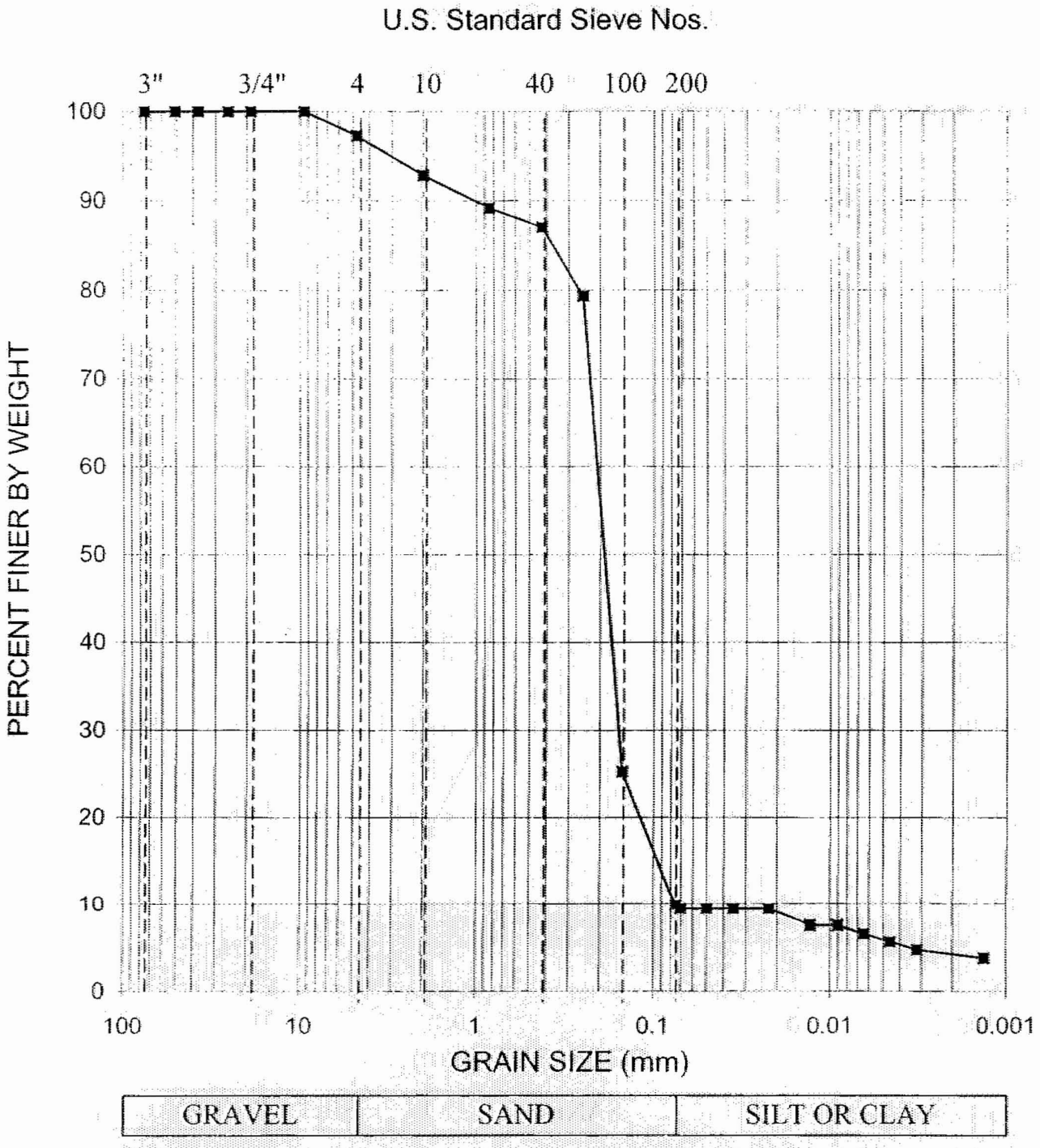
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/17/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-307	93.5	Silty SAND, trace shells, gray	SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/24/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-307	108.5	Poorly Graded SAND with silt, trace shells, green	SP-SM	NP	NP

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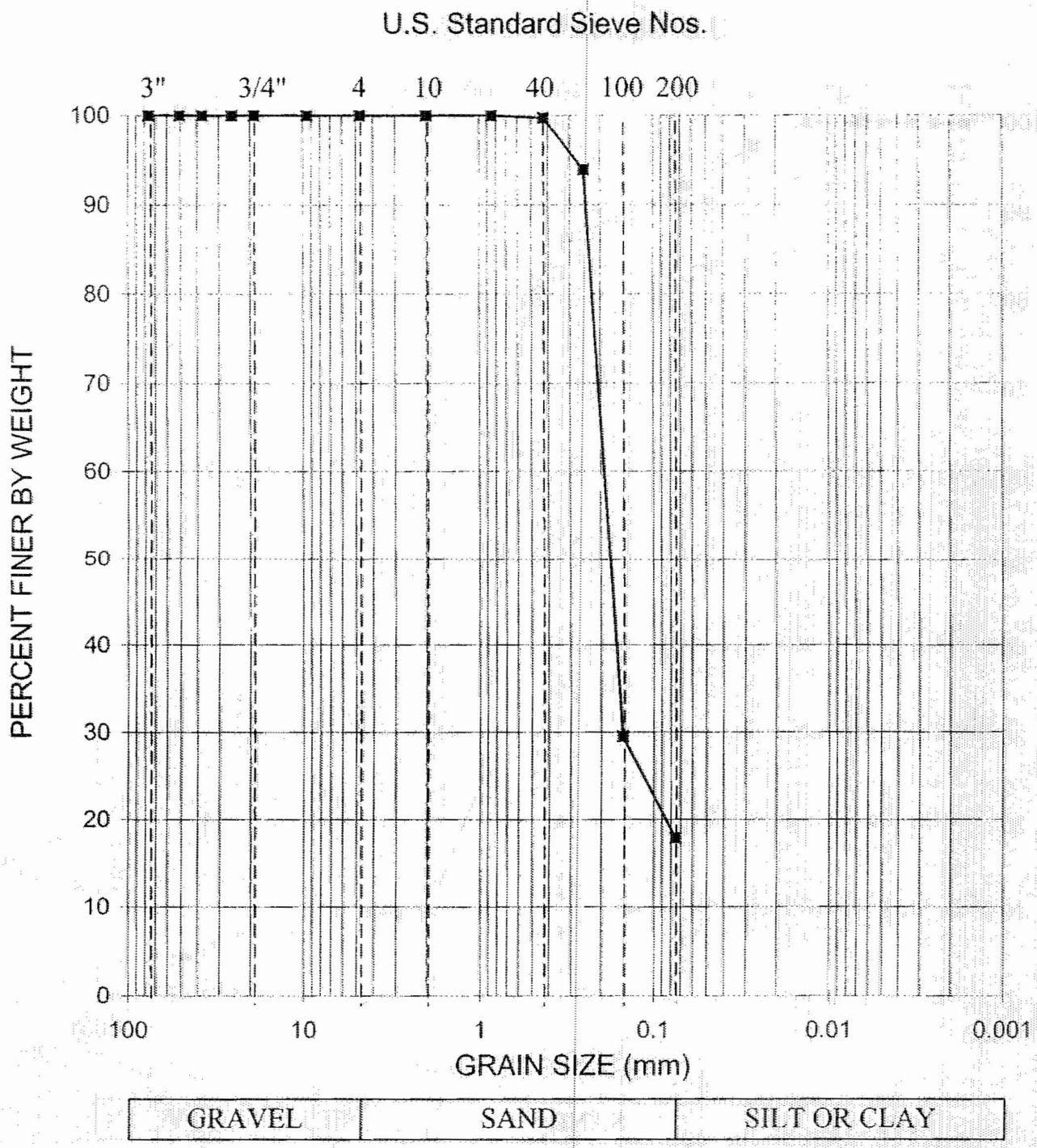


GRADATION CURVE

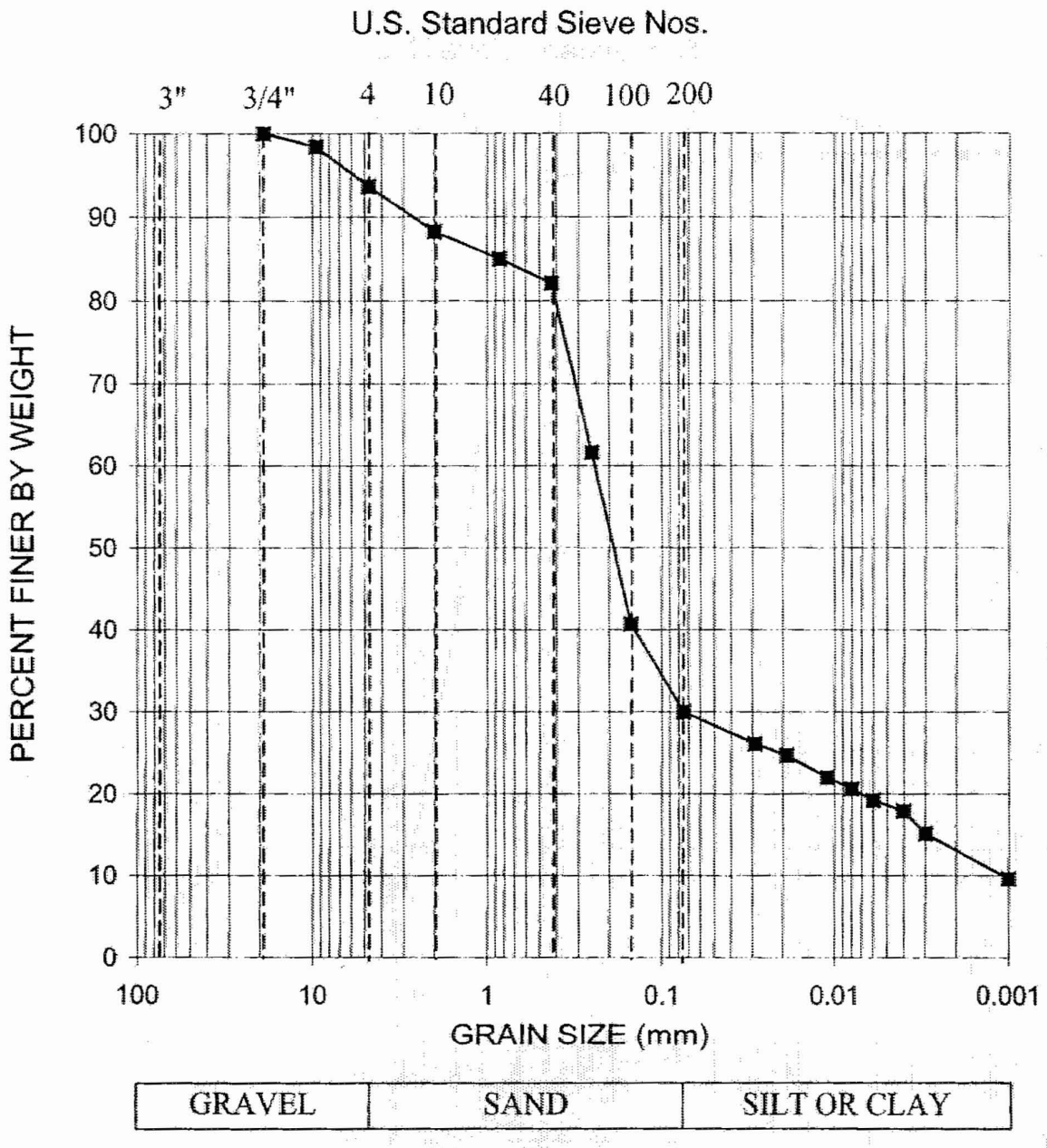
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/17/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-307	118.5	Silty SAND, gray	SM	32	7

Schnabel

Schnabel Engineering



Key	Sample	Depth(ft.)	Sample Description	Class.	LL	PI
■	B-307	123.5-124.7	Fine CLAYEY SAND, contains shell fragments - gray	SC	35	16
▲						
●						

Schnabel

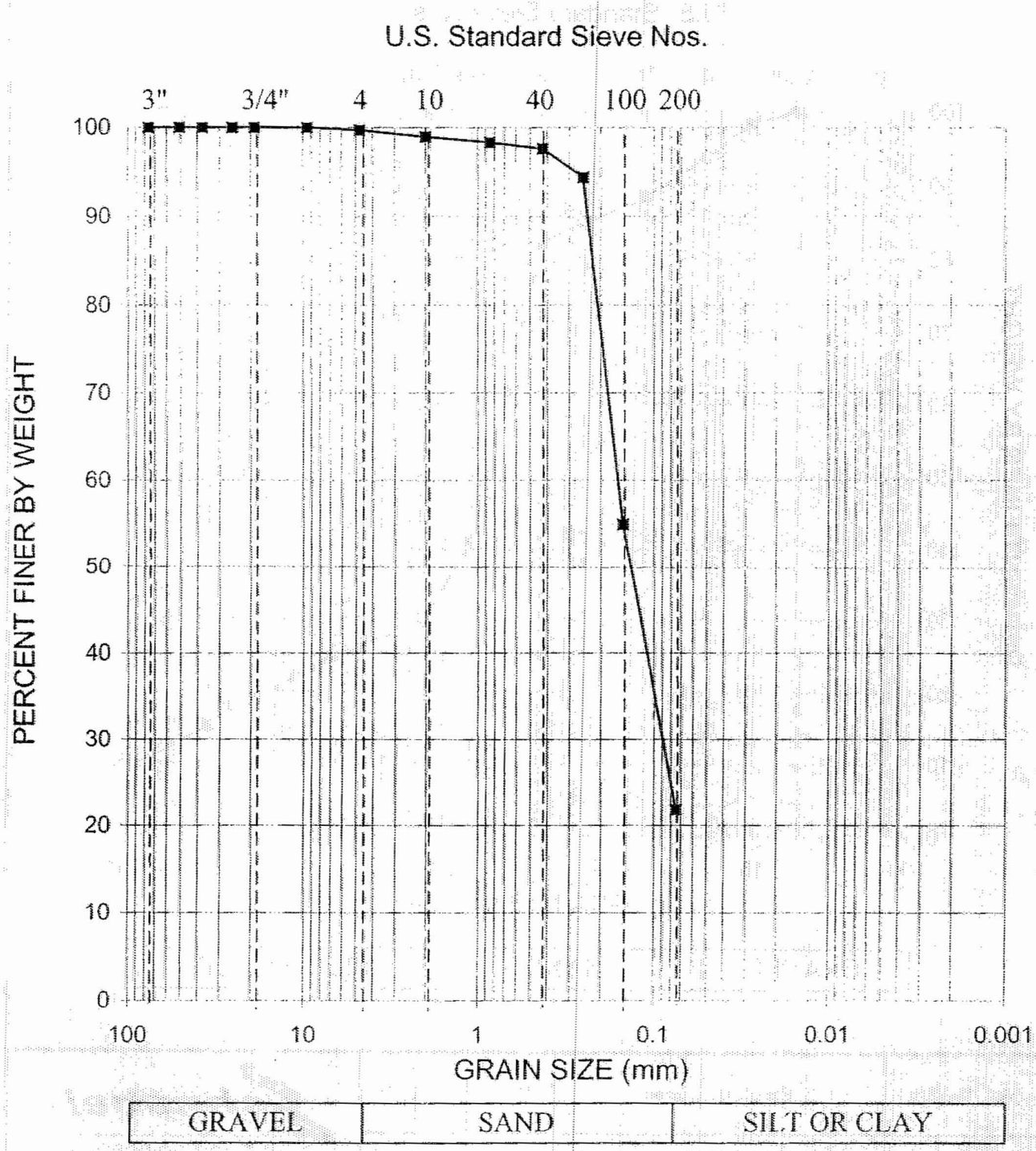
Schnabel Engineering

GRADATION CURVES

Project: Calvert Cliffs Nuclear Power Plant

Contract No. 06120048

Date: 11/20/06 Method: ASTM D422



GRADATION CURVE

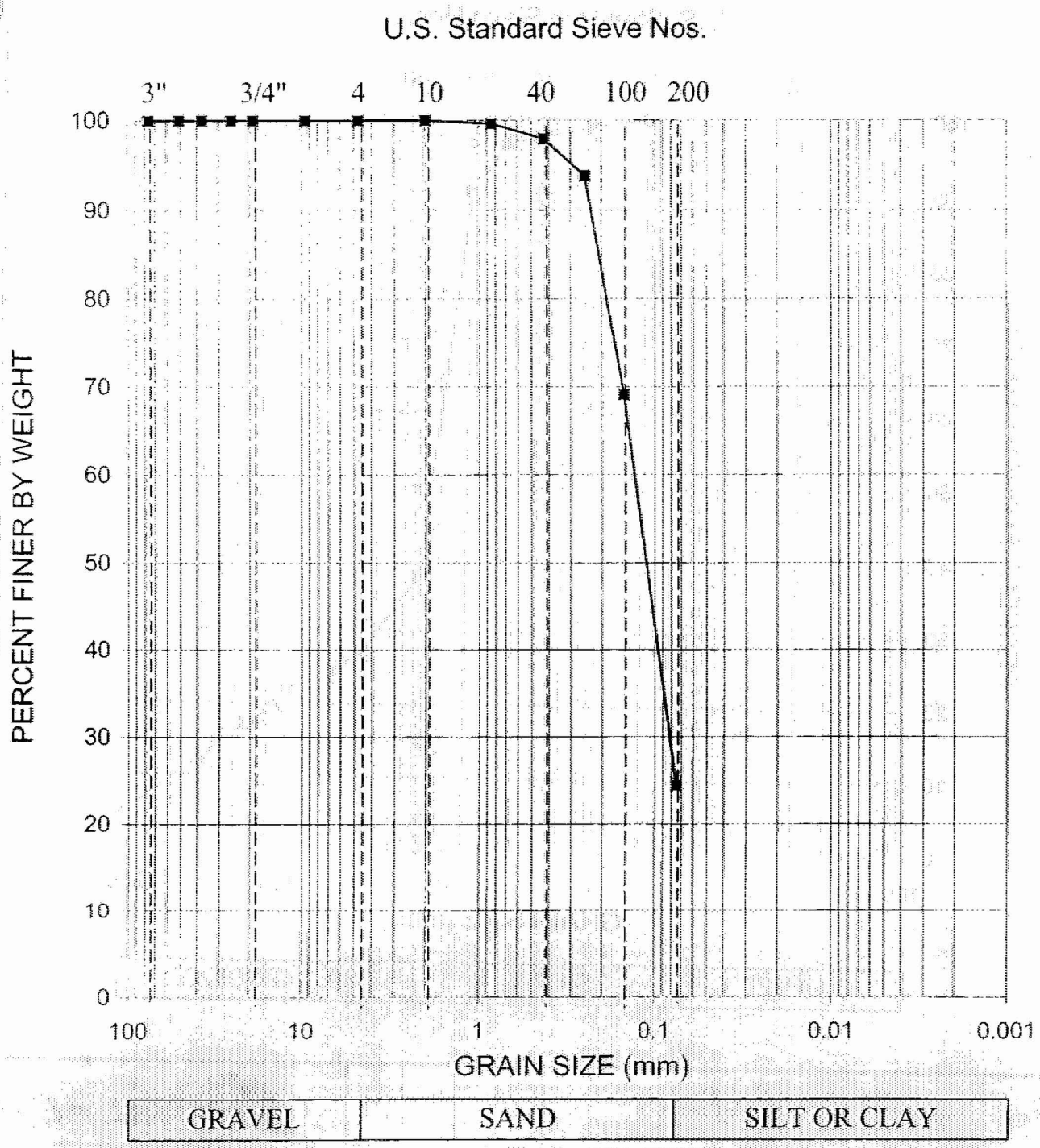
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/17/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-307	133.5	Silty SAND, gray	SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

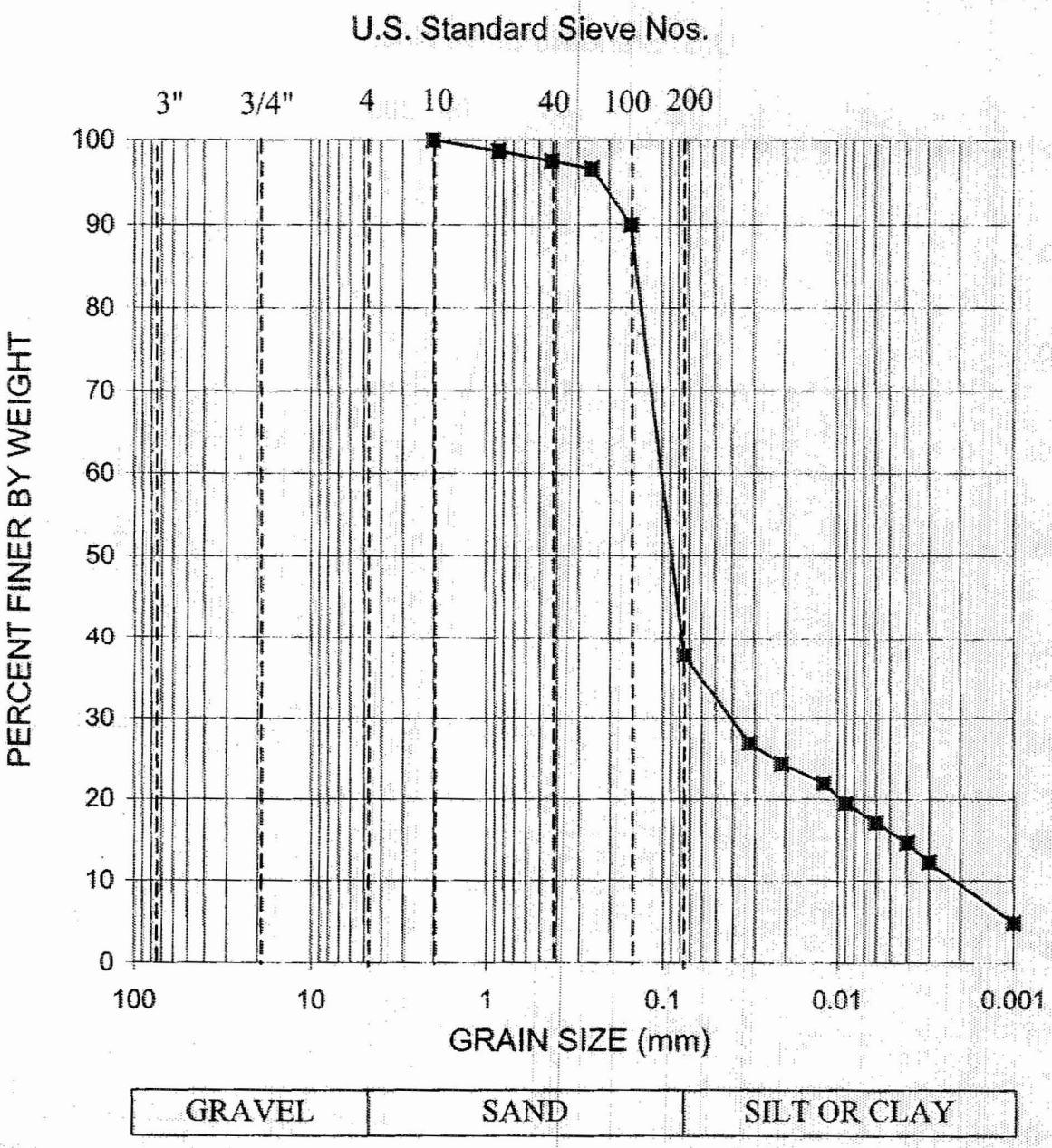
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/17/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-307	153.5	Silty SAND, dark green	SM	58	21

Schnabel

Schnabel Engineering



Key	Sample	Depth(ft.)	Sample Description	Class.	LL	PI
■	B-307	178.5-180.4 ft	Fine to medium CLAYEY SAND, contains shell fragments - green gray	SC	41	16
▲						
●						

Schnabel

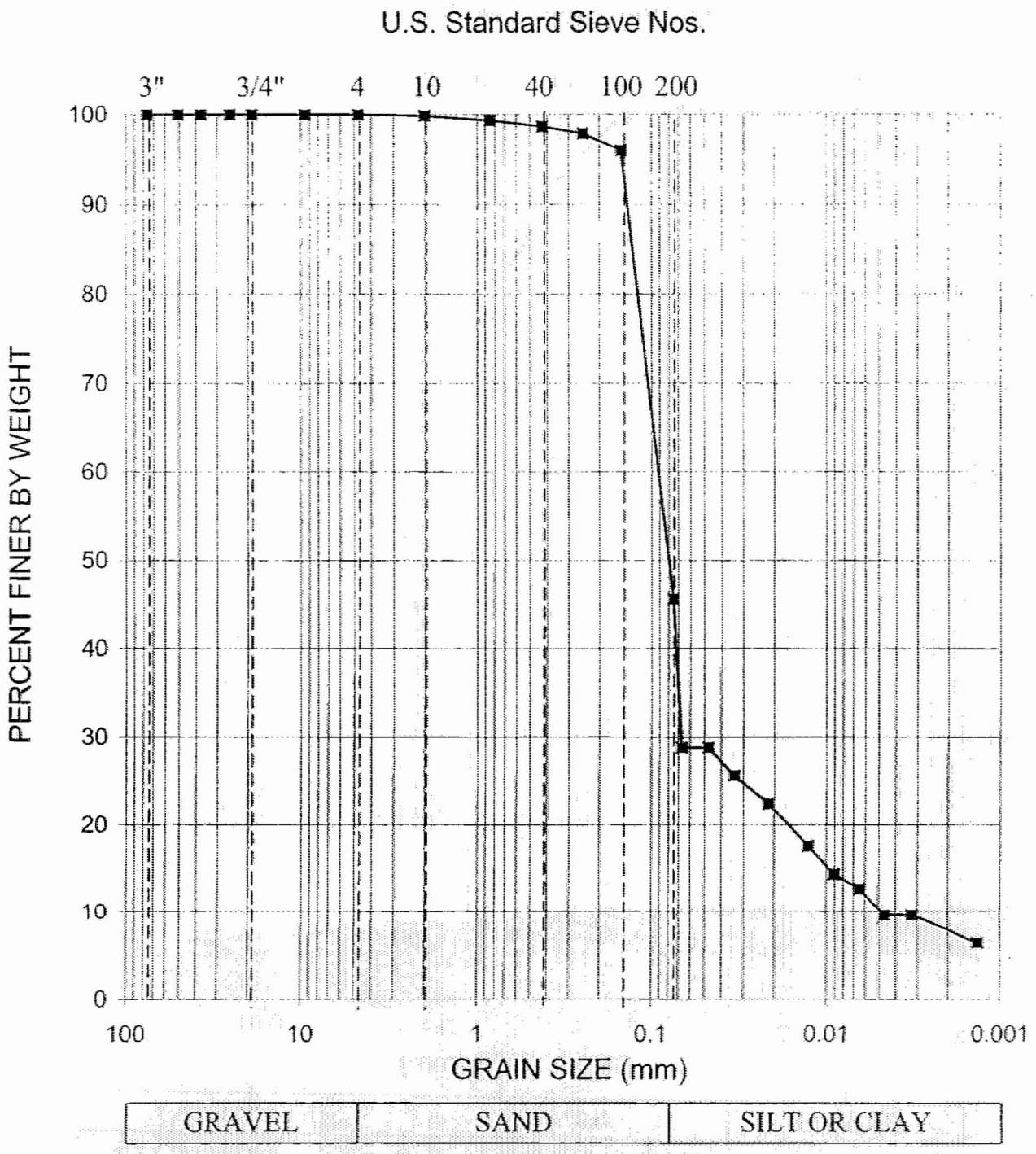
Schnabel Engineering

GRADATION CURVES

Project: Calvert Cliffs Nuclear Power Plant

Contract No. 06120048

Date: 10/16/06 Method: ASTM D422



GRADATION CURVE

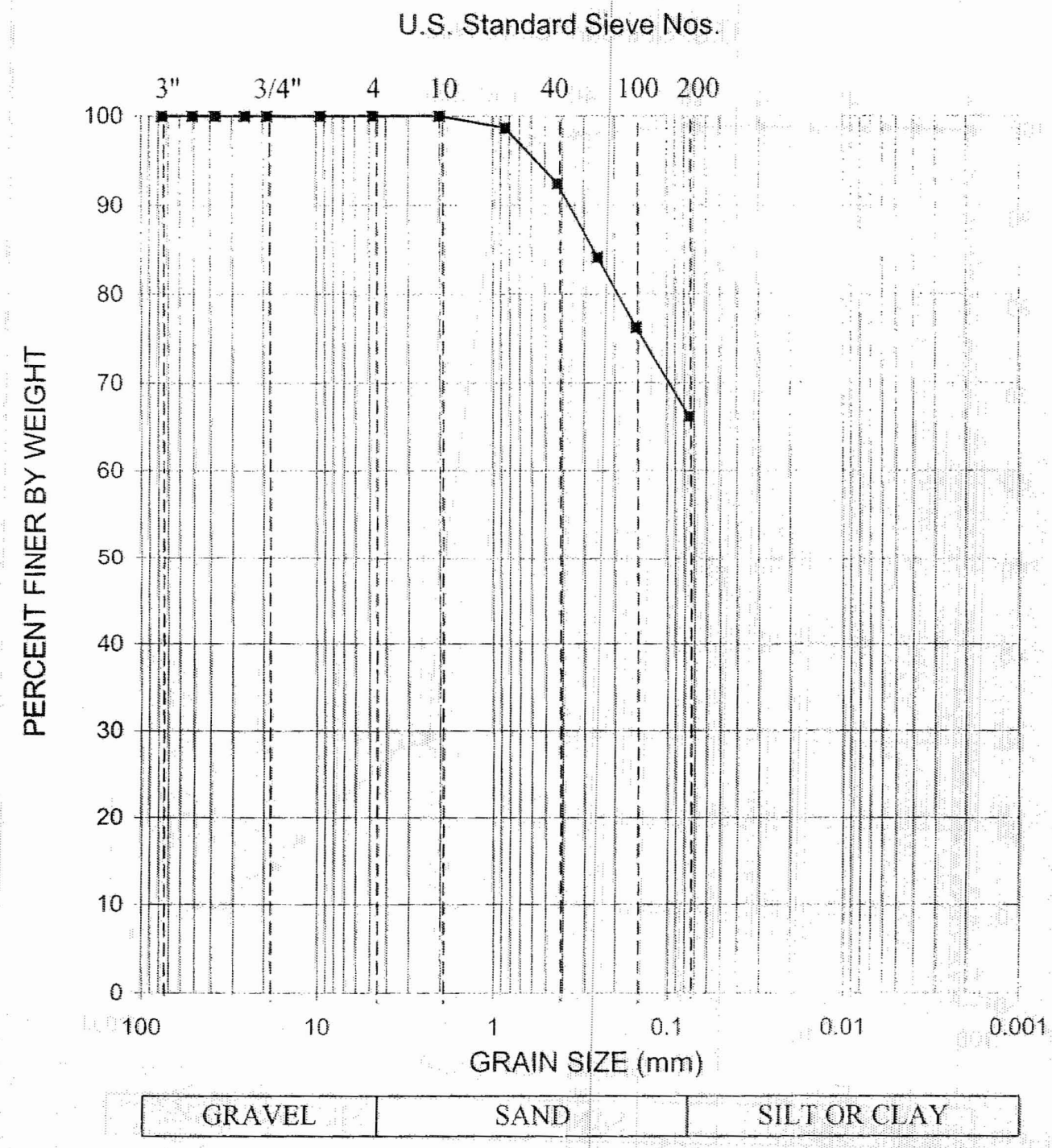
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/22/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-307	188.5	Silty SAND, dark green	SM	61	21

Schnabel

Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/17/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-307	200.0	Sandy ELASTIC SILT, green	MH	137	76

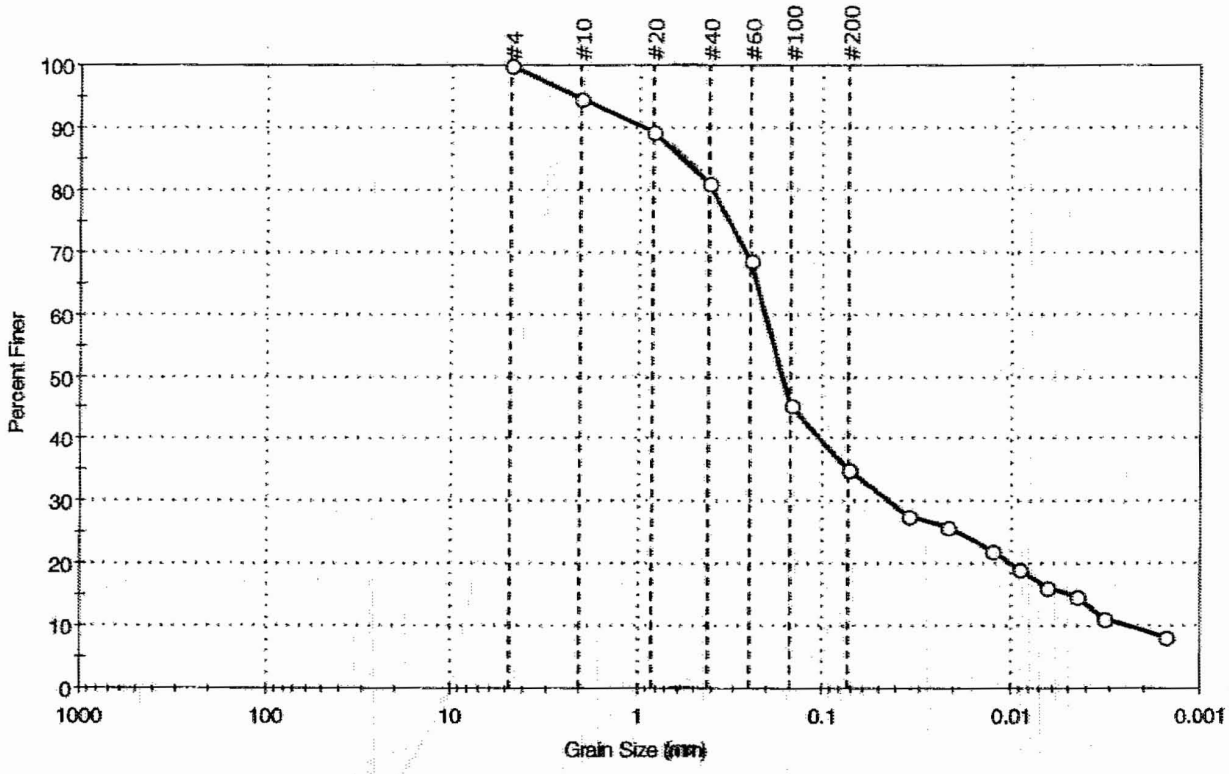
Schnabel

Schnabel Engineering

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-314	Sample Type: tube	Tested By:	sam
Sample ID: S-6	Test Date: 09/08/06	Checked By:	mcm
Depth : 13.5-15.5 ft	Test Id: 95347		
Test Comment: ---			
Sample Description:	Moist, dark olive gray clayey sand		
Sample Comment: ---			

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	--	64.9	35.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	95		
#20	0.84	90		
#40	0.42	81		
#60	0.25	69		
#100	0.15	45		
#200	0.074	35		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
--	0.0350	28		
--	0.0218	26		
--	0.0127	22		
--	0.0090	19		
--	0.0064	16		
--	0.0045	15		
--	0.0032	11		
--	0.0015	8		

Coefficients

D_{85} = 0.5783 mm D_{30} = 0.0436 mm
D_{60} = 0.2062 mm D_{15} = 0.0048 mm
D_{50} = 0.1654 mm D_{10} = 0.0024 mm
C_u = N/A C_c = N/A

Classification

ASTM Clayey sand (SC)

AASHTO Clayey Soils (A-7-6 (12))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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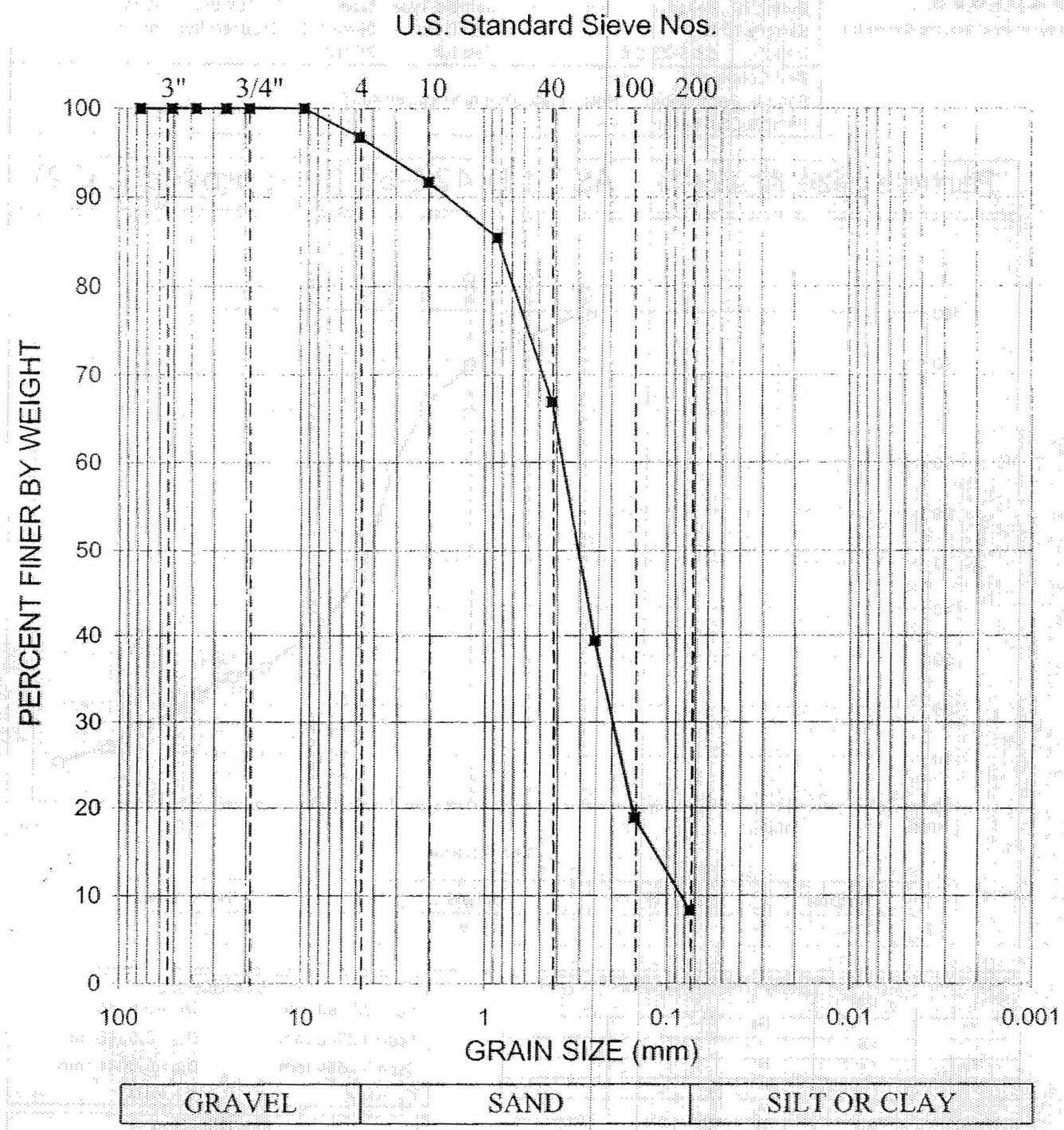


GRADATION CURVE

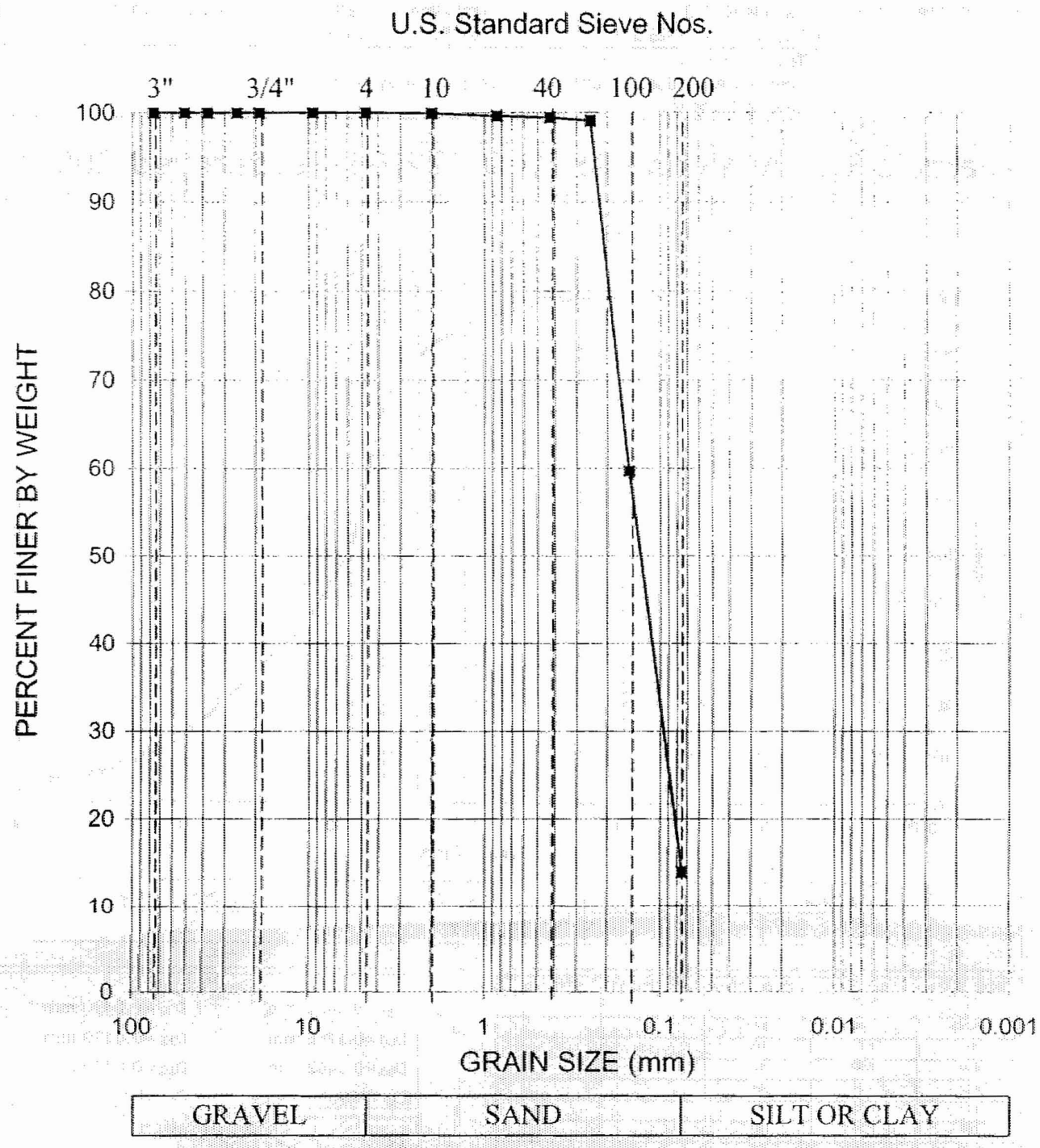
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/28/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-315	7.5	Poorly Graded SAND with silt, trace gravel, light brown	SP-SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	8/28/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-315	13.5	Silty SAND, dark gray	SM		

Schnabel

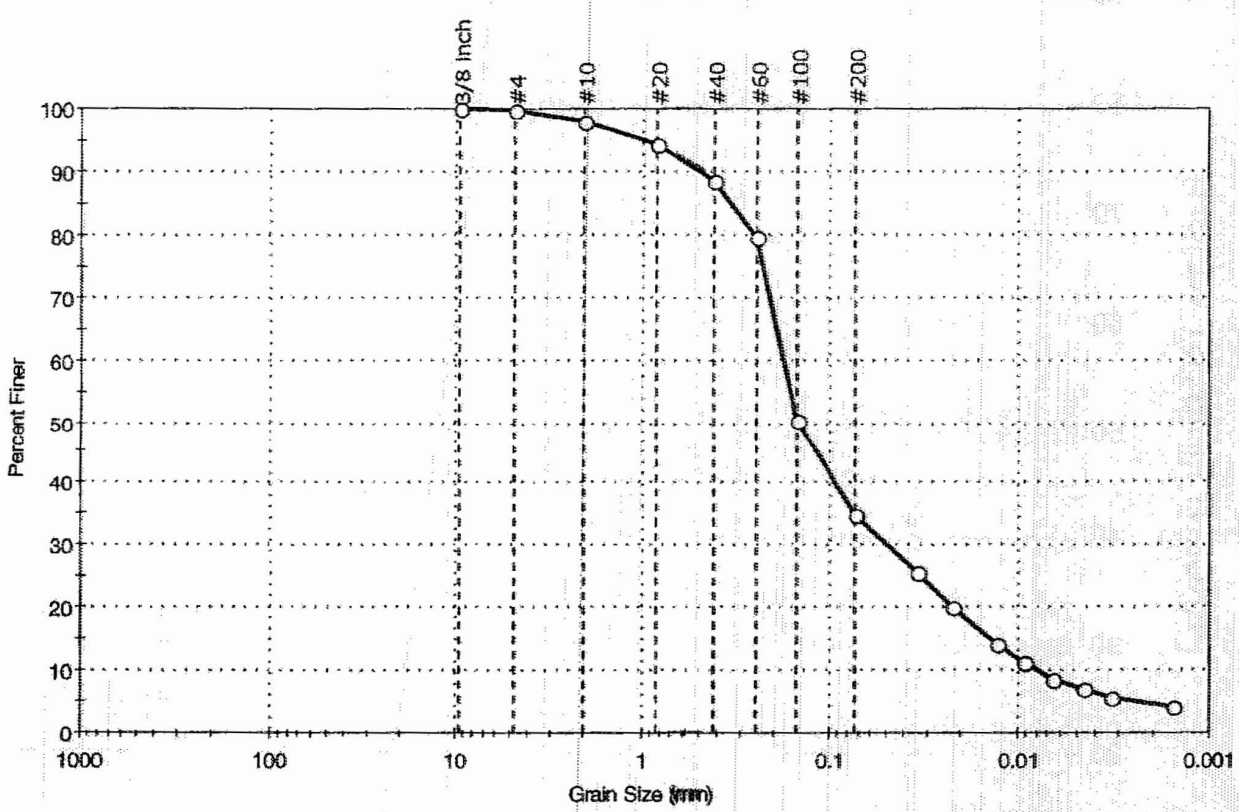
Schnabel Engineering

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-315	Sample Type: tube	Tested By:	sam
Sample ID: S-8	Test Date: 09/08/06	Checked By:	mcm
Depth : 23.5-25.5 ft	Test Id: 95760		

Test Comment: ---
Sample Description: Moist, dark olive gray clayey sand
Sample Comment: ---

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



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.4	64.7	34.9

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
3/8 inch	9.51	100		
#4	4.75	100		
#10	2.00	98		
#20	0.84	94		
#40	0.42	89		
#60	0.25	80		
#100	0.15	50		
#200	0.074	35		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0342	26		
---	0.0220	20		
---	0.0129	14		
---	0.0092	11		
---	0.0066	8		
---	0.0047	7		
---	0.0033	5		
---	0.0016	4		

Coefficients

D_{85} = 0.3421 mm	D_{30} = 0.0490 mm
D_{60} = 0.1766 mm	D_{15} = 0.0139 mm
D_{50} = 0.1462 mm	D_{10} = 0.0079 mm
C_u = N/A	C_c = N/A

Classification

ASTM Clayey sand (SC)

AASHTO Clayey Gravel and Sand (A-2-7 (7))

Sample / Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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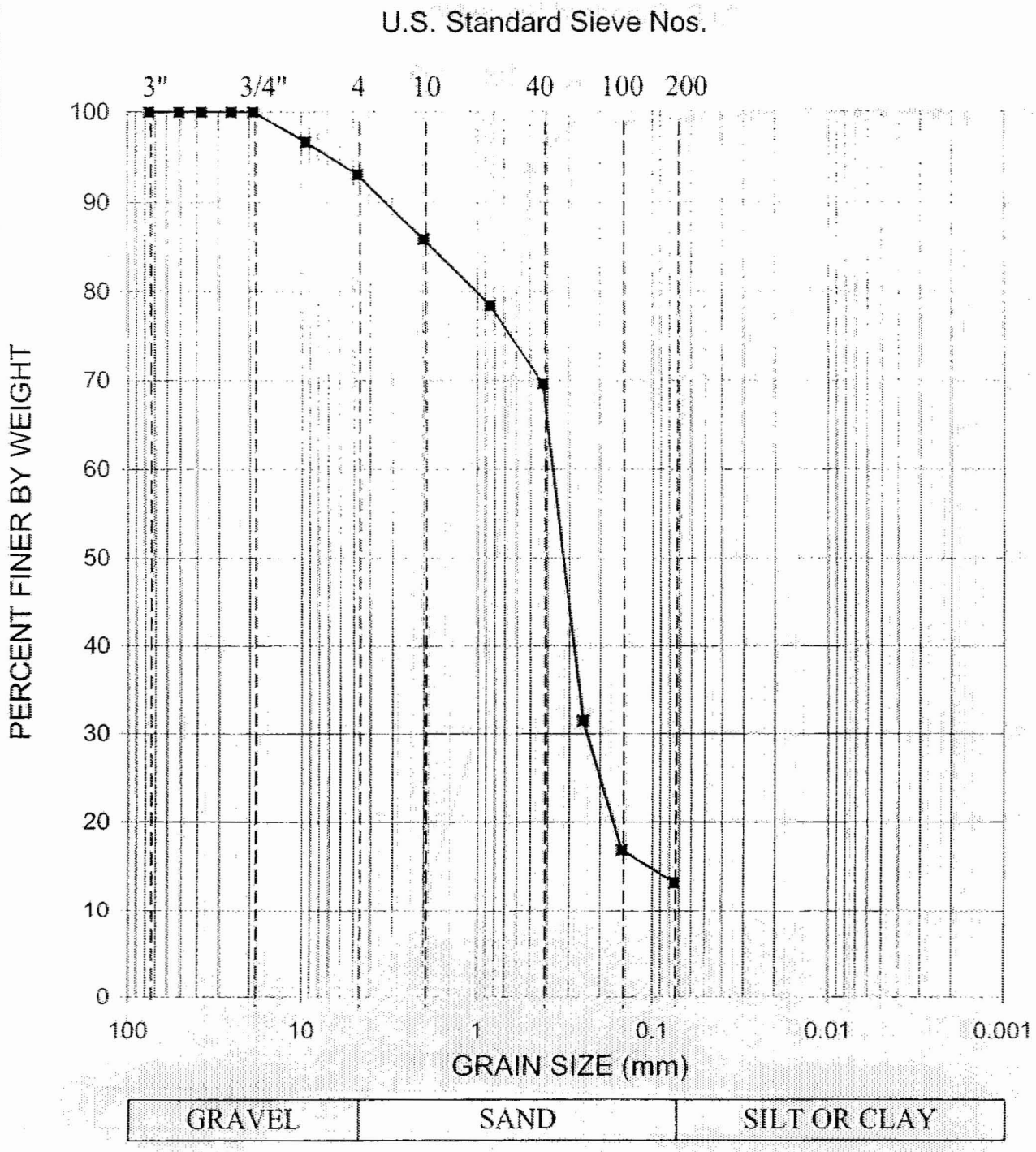

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs Nuclear Power Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 8/24/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-315	38.5	Silty SAND, trace shells, gray	SM	NP	NP

Schnabel

Schnabel Engineering