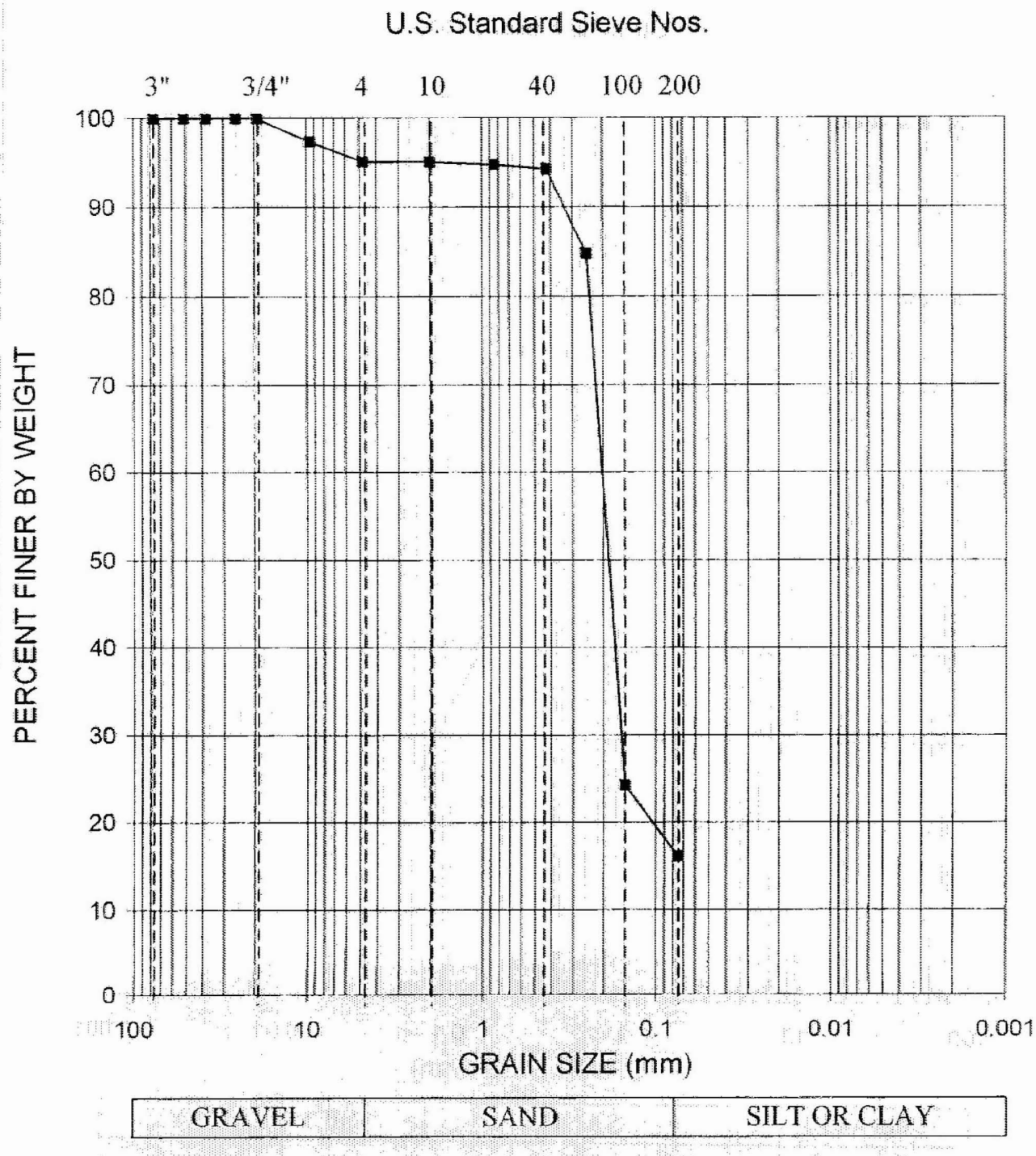



**GRADATION CURVE**

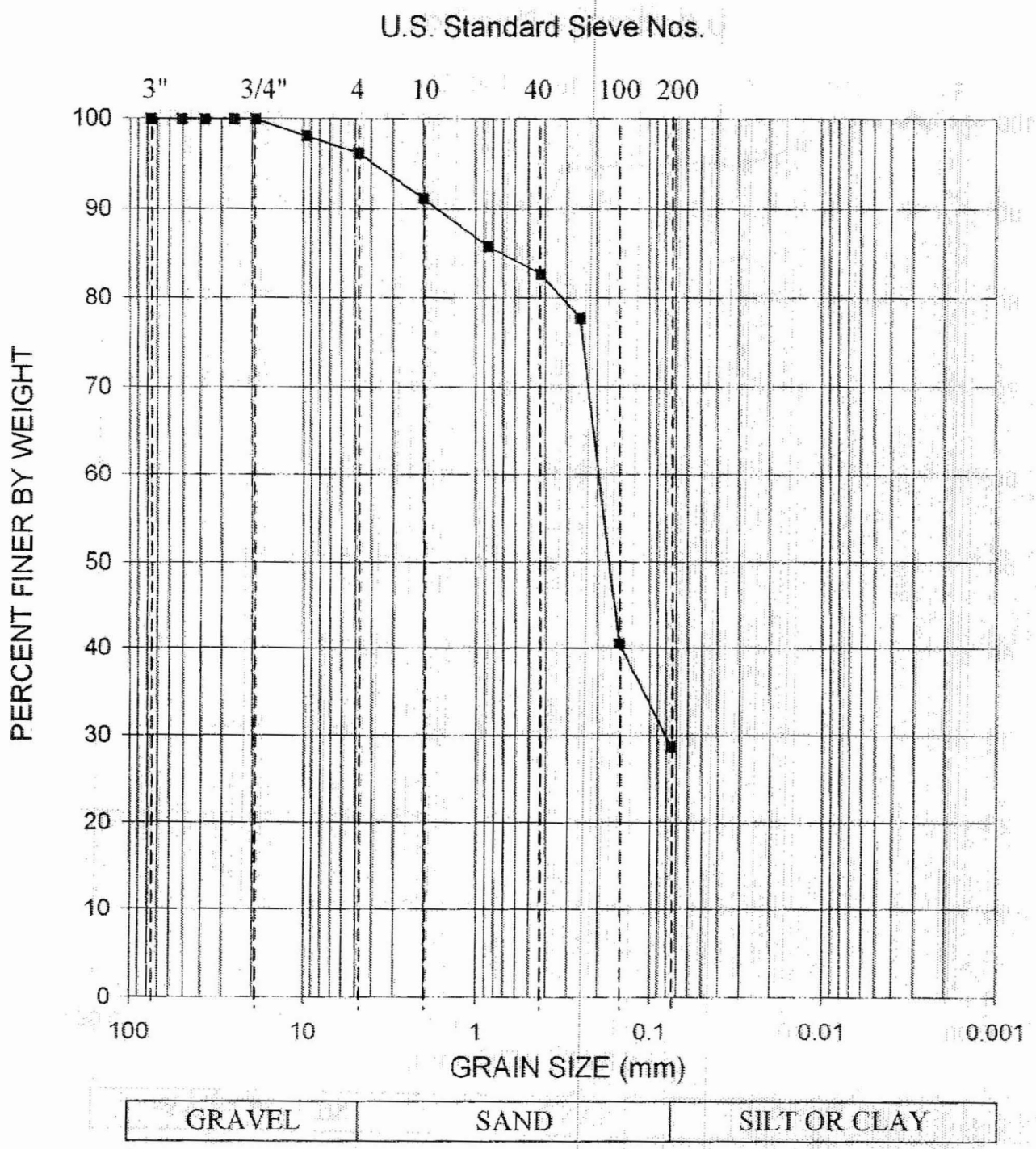
ASTM D422

| Project: | Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland | Contract No.: | 06120048.00 | Date: | 9/12/2006 |
|---|---|---|---|---|---|

| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI |
|---|---|---|---|---|---|
| B-413 | 118.5 | Silty SAND, trace shells, green | SM | | |

Schnabel

Schnabel Engineering



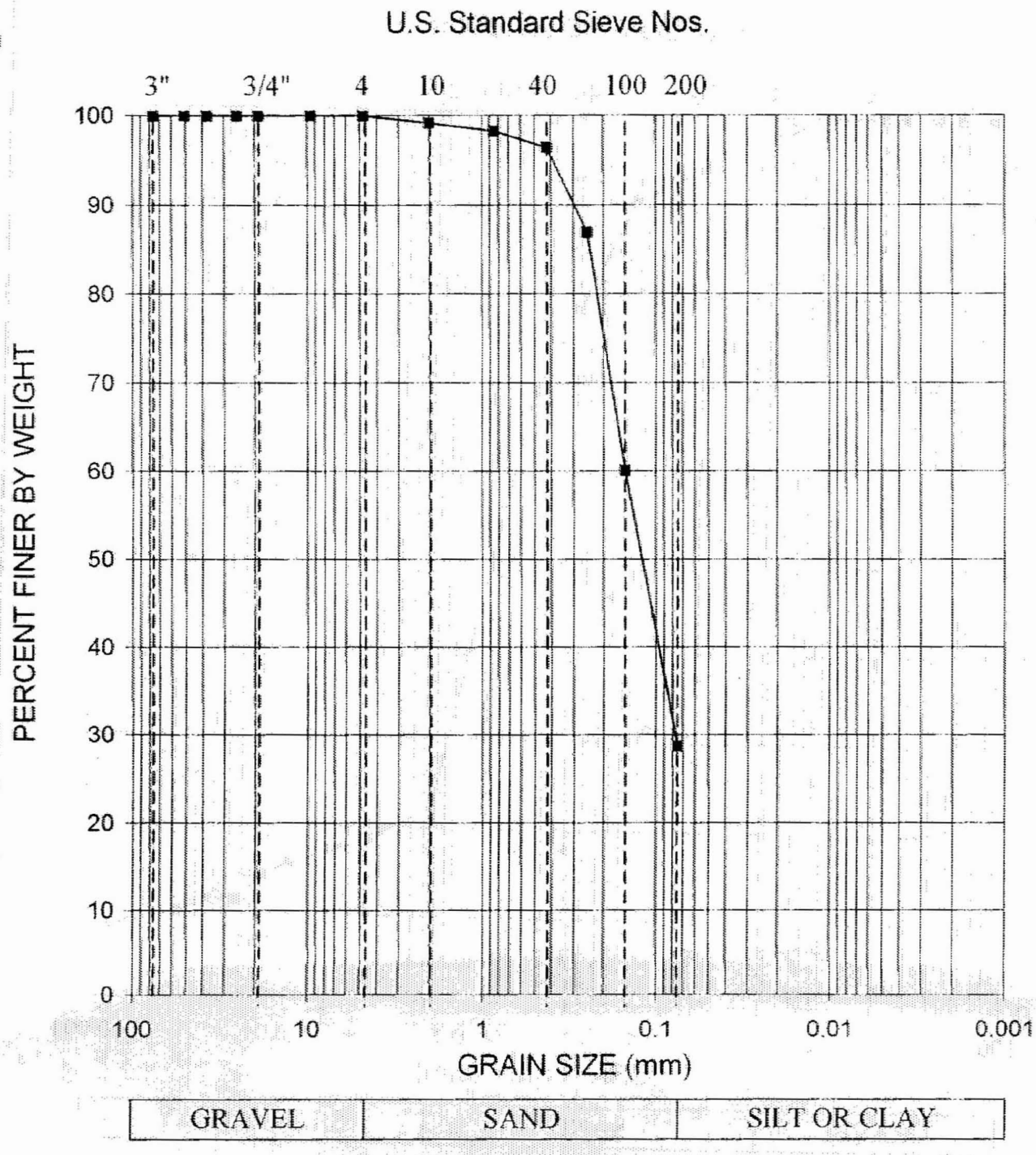

**GRADATION CURVE**

ASTM D422

| Project: | Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland | | Contract No.: | 06120048.00 | Date: | 9/13/2006 |
|---|---|---|---|---|---|---|
| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI | |
| B-413 | 133.5 | Silty SAND, trace shells, green | SM | | | |

Schnabel

Schnabel Engineering




**GRADATION CURVE**

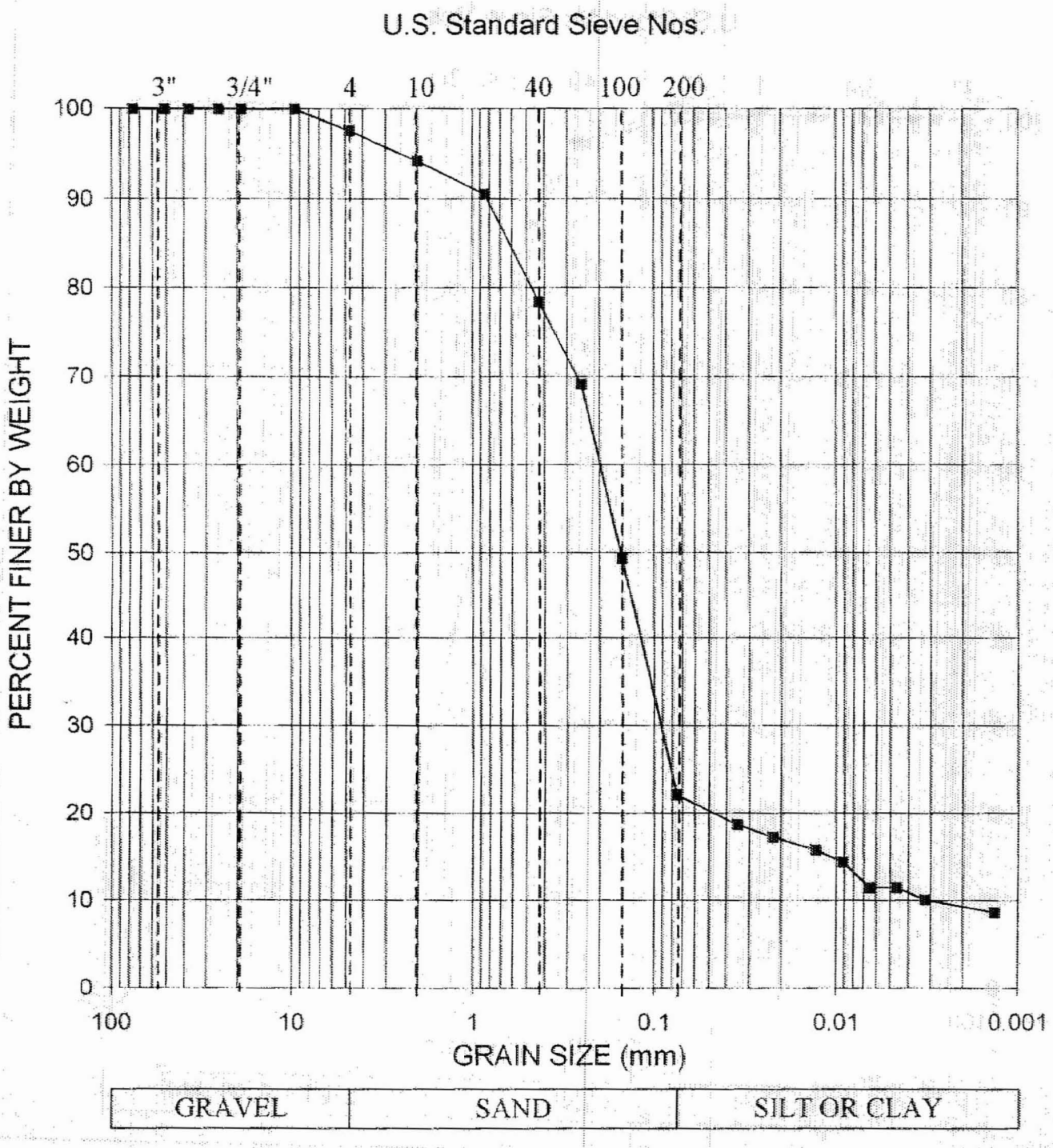
ASTM D422

| Project: | Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland | Contract No.: 06120048.00 | Date: 9/13/2006 |
|---|---|---|---|

| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI |
|---|---|---|---|---|---|
| B-413 | 148.5 | Silty SAND, contains shells, green | SM | | |

Schnabel

Schnabel Engineering




**GRADATION CURVE**

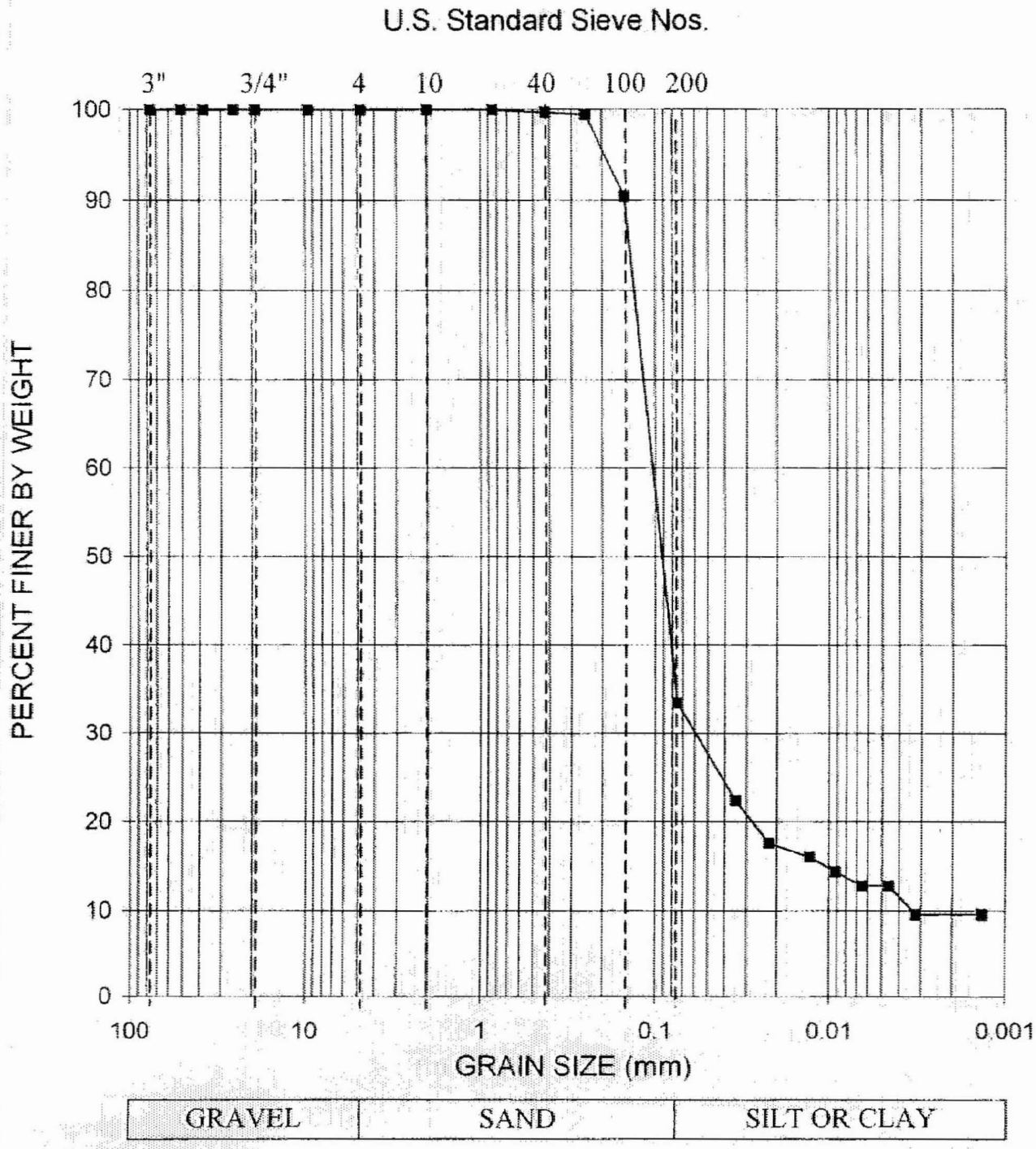
ASTM D422

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

| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI |
|---|---|---|---|---|---|
| B-414 | 43.5 | Silty SAND, brown | SM | NP | NP |

Schnabel

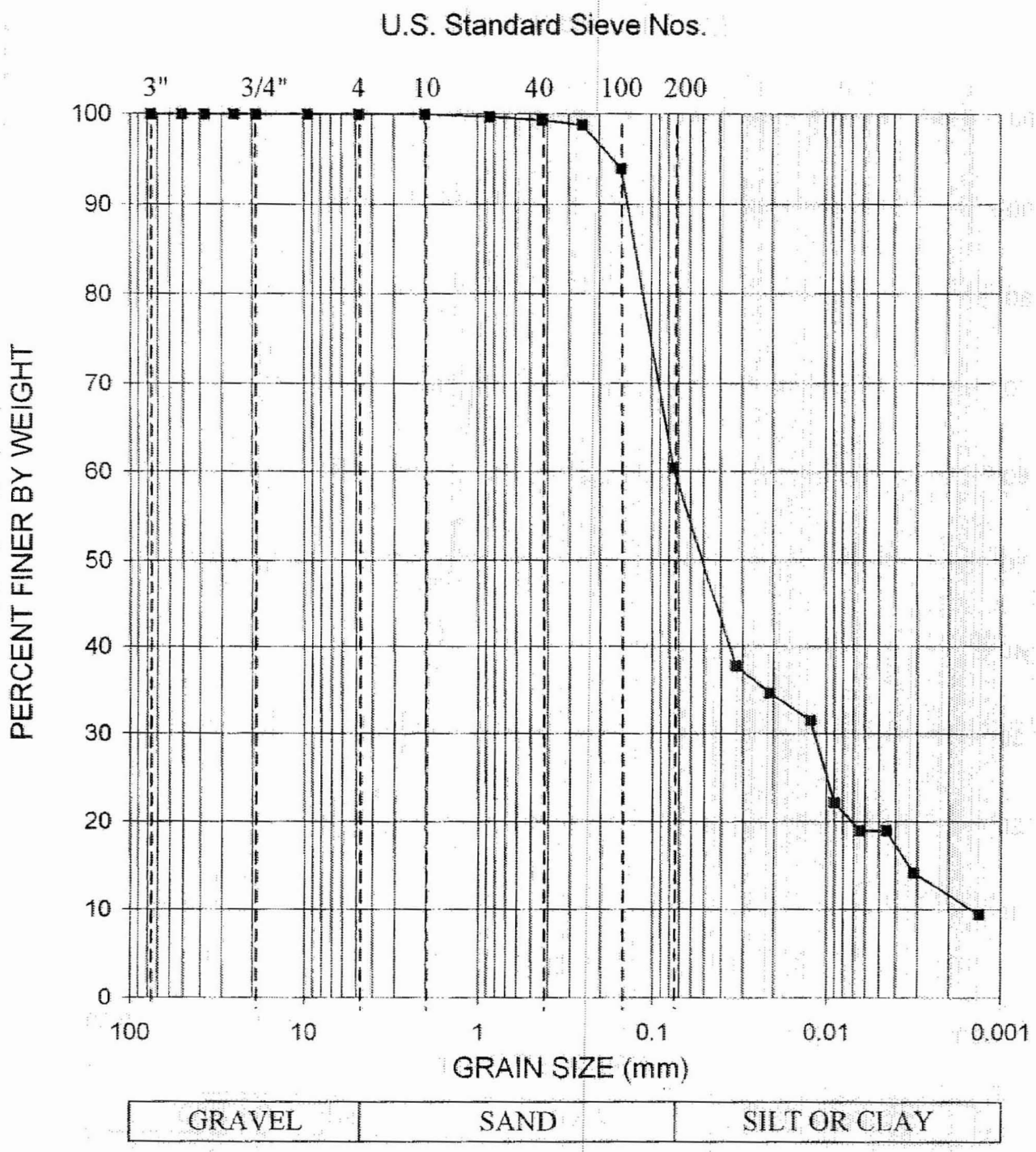
Schnabel Engineering




**GRADATION CURVE**

ASTM D422

| Project: | Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland | | Contract No.: | 06120048.00 | Date: | 9/19/2006 |
|---|---|---|---|---|---|---|
| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI | |
| B-414 | 48.5 | Silty SAND, light brown | SM | NP | NP | Schnabel Engineering |




**GRADATION CURVE**

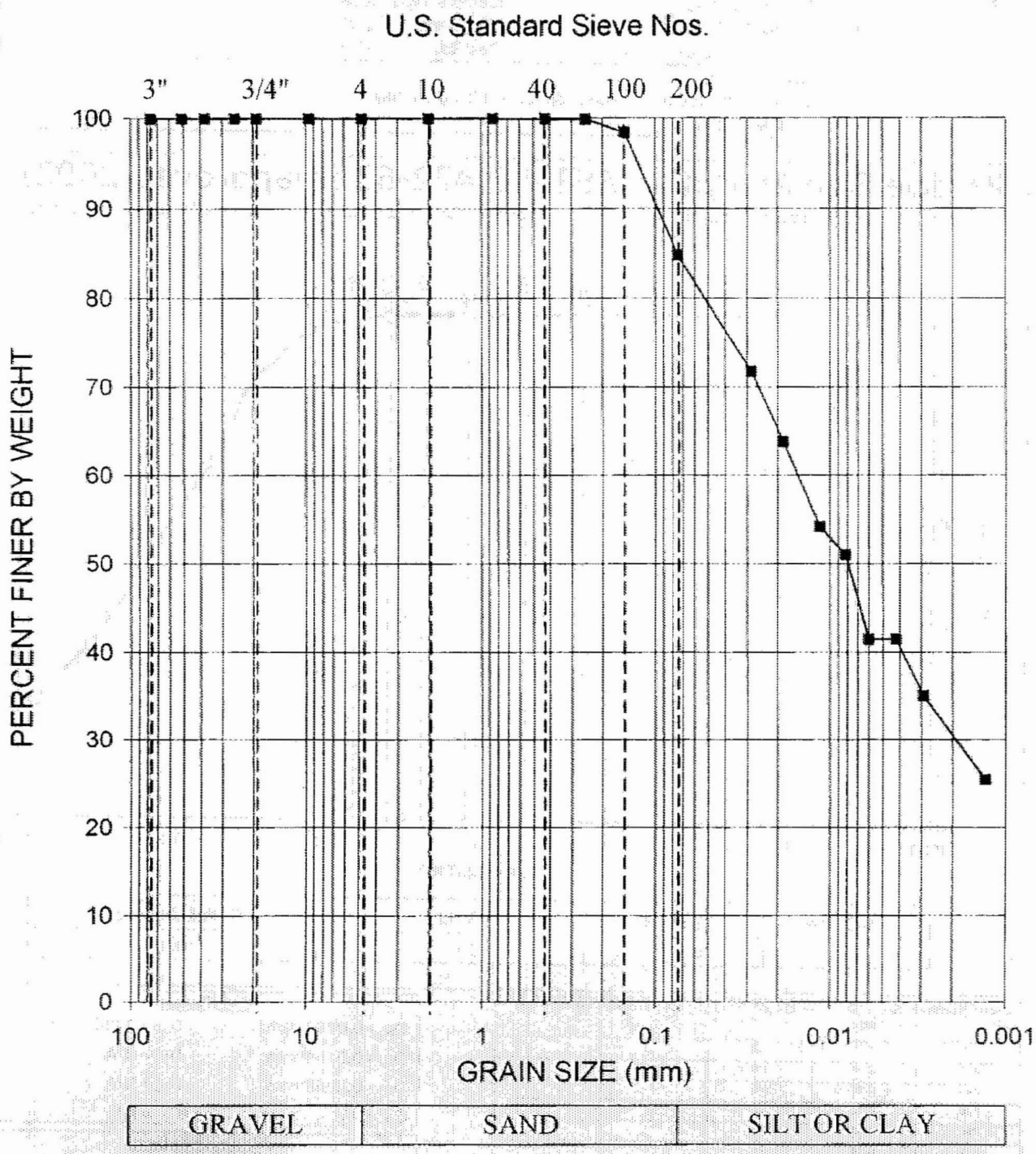
ASTM D422

| Project: | Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland | Contract No.: | 06120048.00 | Date: | 9/14/2006 |
|---|---|---|---|---|---|

| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI |
|---|---|---|---|---|---|
| B-414 | 53.5 | Sandy LEAN CLAY, dark gray | CL | 42 | 19 |

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: | 9/20/2006 |
|---|---|---|---|---|---|

| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI |
|---|---|---|---|---|---|
| B-414 | 58.0 | FAT CLAY, with sand, dark gray | CH | 58 | 38 |

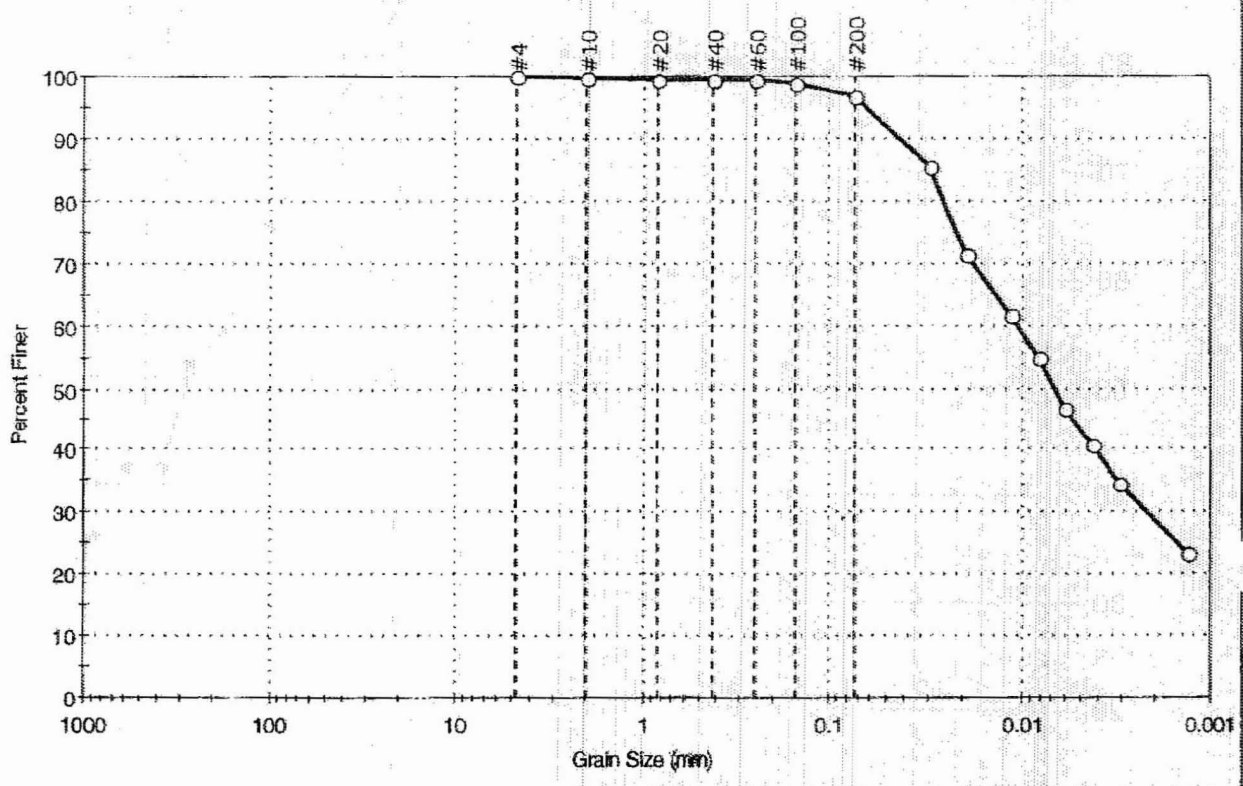
Schnabel

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-414 | Sample Type: tube | Tested By: | sam |
| Sample ID:S-17 | Test Date: 10/27/06 | Checked By: | mcm |
| Depth : 68.0-70.0 ft | Test Id: 98069 | | |
| Test Comment: | --- | | |
| Sample Description: | Moist, dark greenish gray clay | | |
| Sample Comment: | --- | | |

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




| % Cobble | % Gravel | % Sand | % Silt & Clay Size |
|---|---|---|---|
| — | 0.1 | 3.1 | 96.8 |

| 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 | 99 | | |
| #60 | 0.25 | 99 | | |
| #100 | 0.15 | 99 | | |
| #200 | 0.074 | 97 | | |
| --- | Particle Size (mm) | Percent Finer | Spec. Percent | Complies |
| --- | 0.0293 | 66 | | |
| --- | 0.0192 | 71 | | |
| --- | 0.0113 | 62 | | |
| --- | 0.0082 | 55 | | |
| --- | 0.0060 | 47 | | |
| --- | 0.0043 | 41 | | |
| --- | 0.0031 | 34 | | |
| --- | 0.0013 | 23 | | |

**Coefficients**

| | |
|---|---|
| $D_{85}$ = 0.0287 mm | $D_{30}$ = 0.0022 mm |
| $D_{60}$ = 0.0104 mm | $D_{15}$ = N/A |
| $D_{50}$ = 0.0068 mm | $D_{10}$ = N/A |
| $C_u$ = N/A | $C_c$ = N/A |

**Classification**

ASTM fat clay (CH)

AASHTO Clayey Soils (A-7-6 (41))

**Sample/Test Description**

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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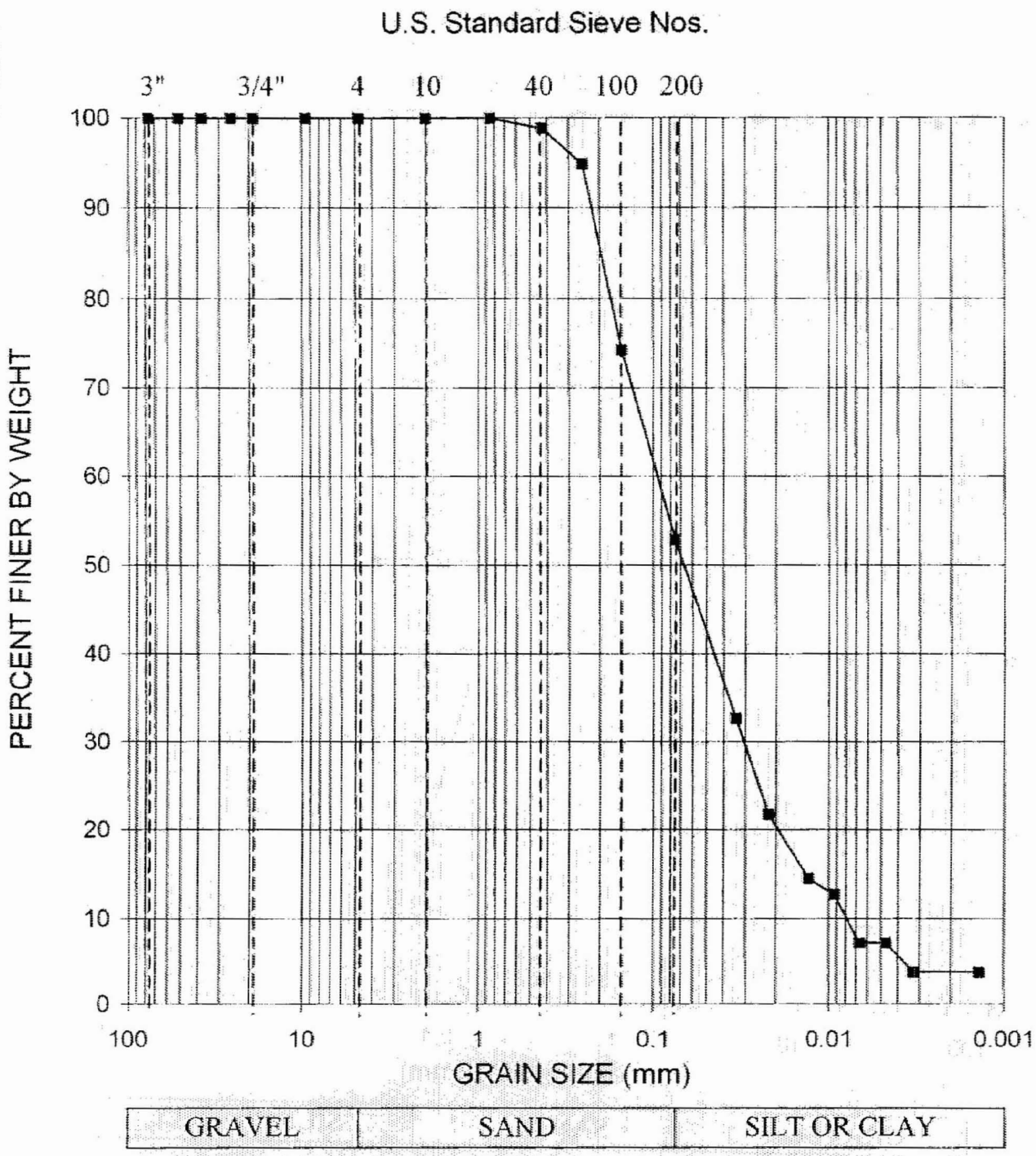



**GRADATION CURVE**

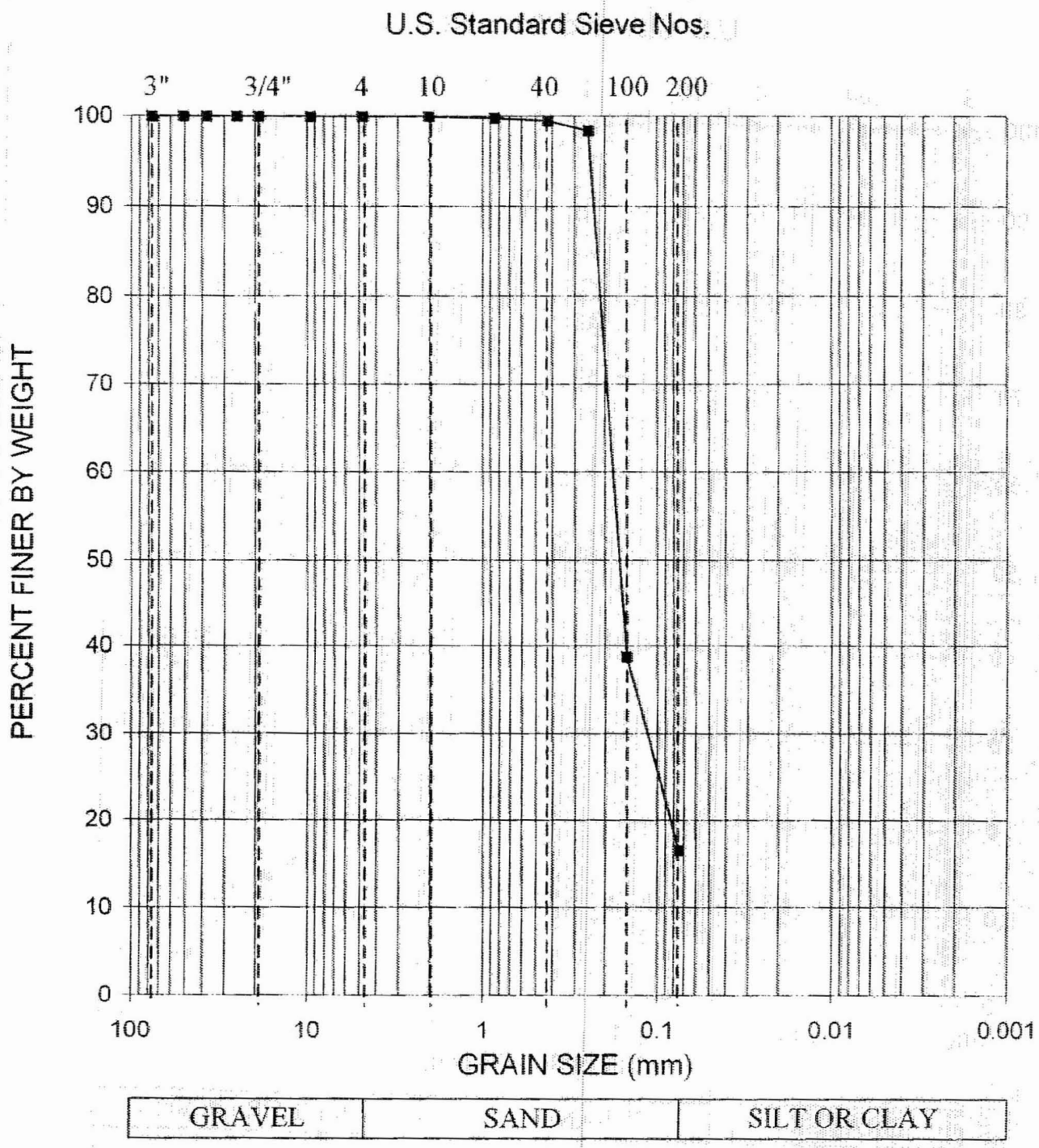
ASTM D422

| Project: | Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland | Contract No.: | 06120048.00 | Date: | 9/21/2006 |
|---|---|---|---|---|---|

| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI |
|---|---|---|---|---|---|
| B-414 | 73.5 | Sandy LEAN CLAY, green | CL | 39 | 19 |

Schnabel

Schnabel Engineering



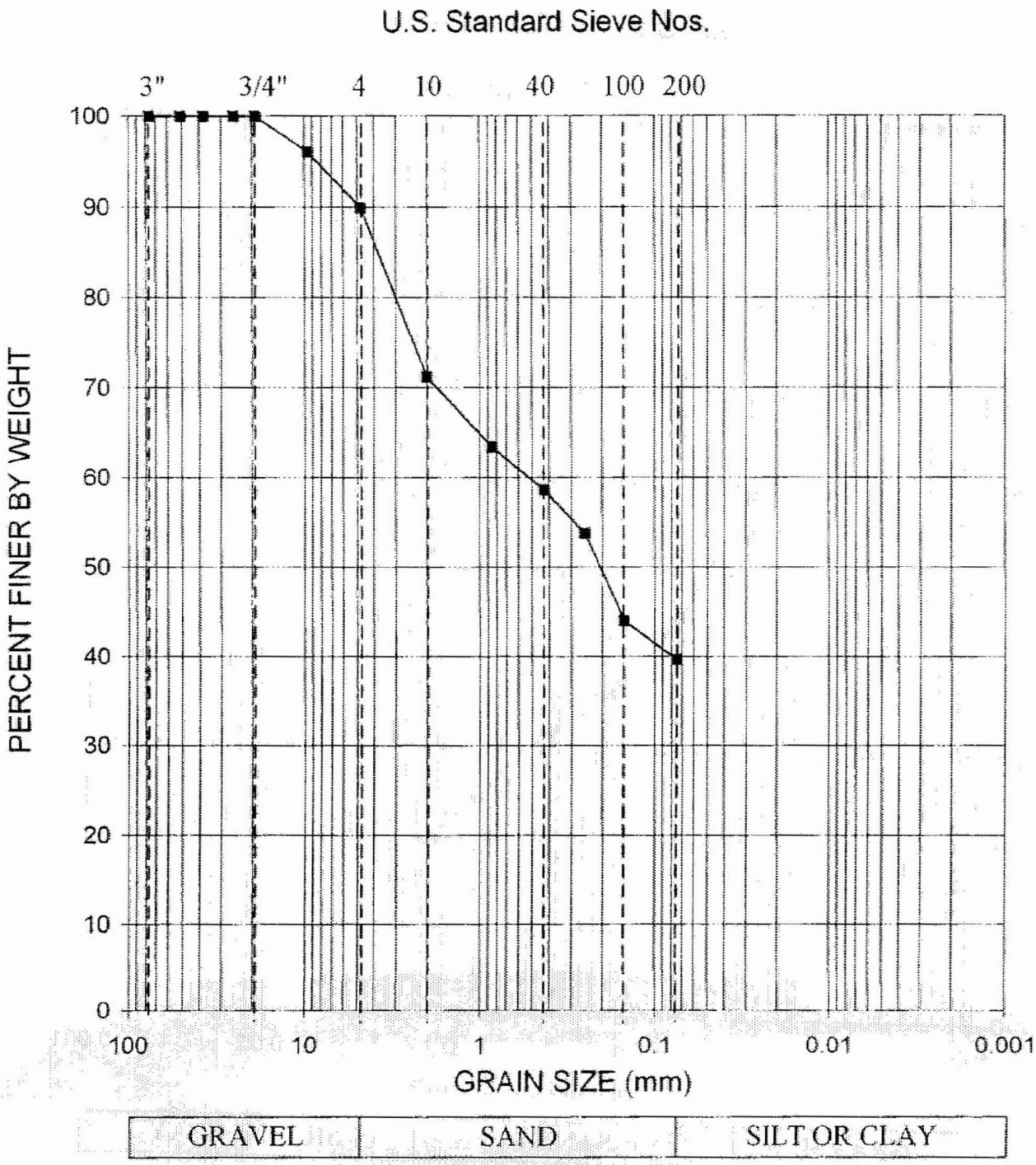

**GRADATION CURVE**

ASTM D422

| Project: | Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland | | Contract No. | 06120048.00 | Date: | 9/13/2006 |
|---|---|---|---|---|---|---|
| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI | |
| B-414 | 83.5 | Silty SAND, light gray | SM | | | |

Schnabel

Schnabel Engineering




**GRADATION CURVE**

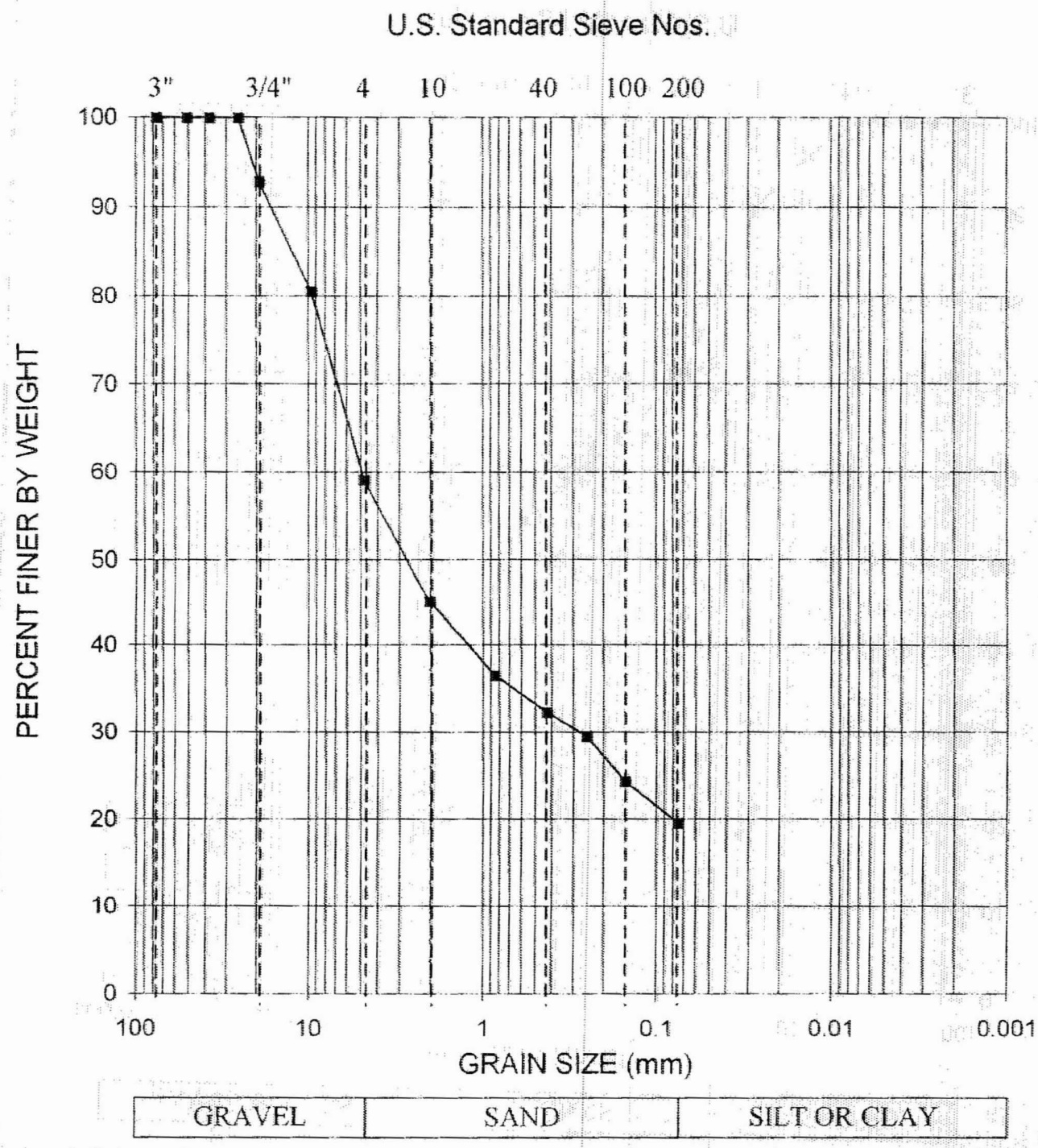
ASTM D422

| Project: | Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland | Contract No.: 06120048.00 | Date: 9/13/2006 |
|---|---|---|---|

| Boring No. | Depth (ft) | Sample Description | Class | LL | PI |
|---|---|---|---|---|---|
| B-414 | 93.5 | Silty SAND, trace shells, green | SM | | |

Schnabel

Schnabel Engineering



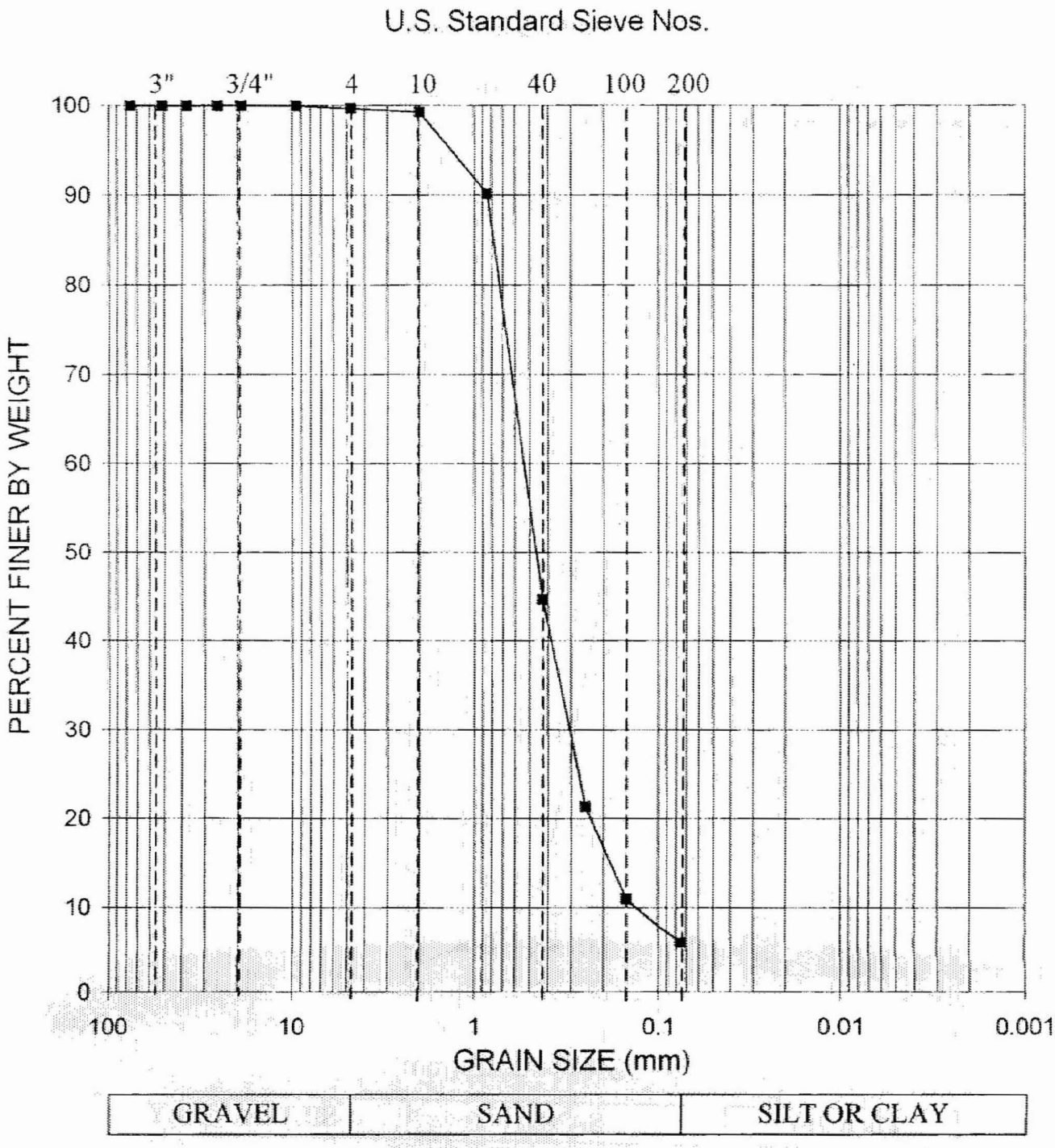

**GRADATION CURVE**

ASTM D422

| Project: | Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland | | Contract No. | 06120048.00 | | Date: | 9/13/2006 |
|---|---|---|---|---|---|---|---|
| Boring No. | Depth (ft) | Sample Description | Class. | LL | PI | | |
| B-414 | 98.5 | Silty SHELLS, with sand , gray | GM | | | | |

Schnabel

Schnabel Engineering




**GRADATION CURVE**

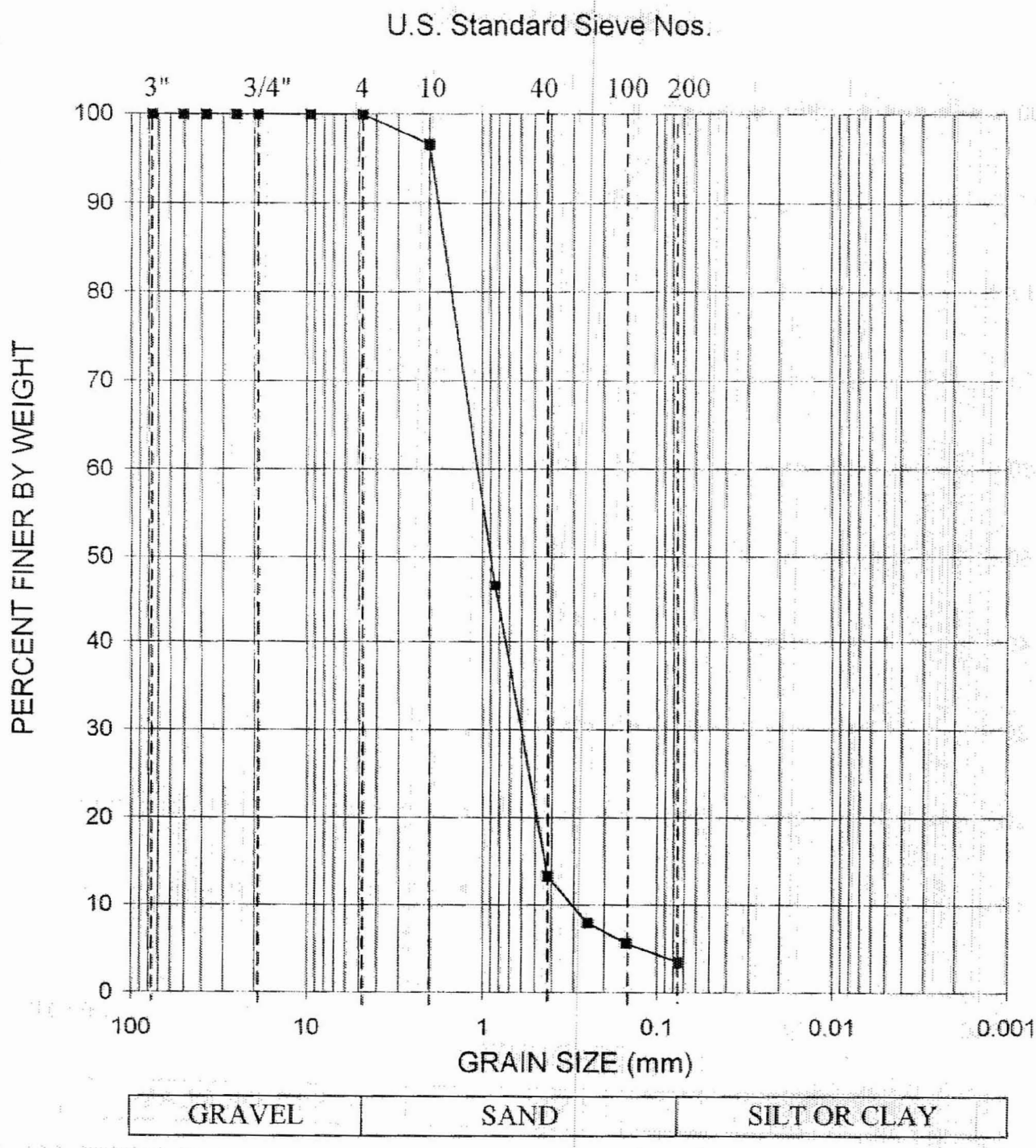
ASTM D422

| 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-415 | 5 | Poorly Graded SAND, with silt, tan | 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-415 | 13.5 | Poorly Graded SAND, trace silt, brown | SP | | | Schnabel Engineering |