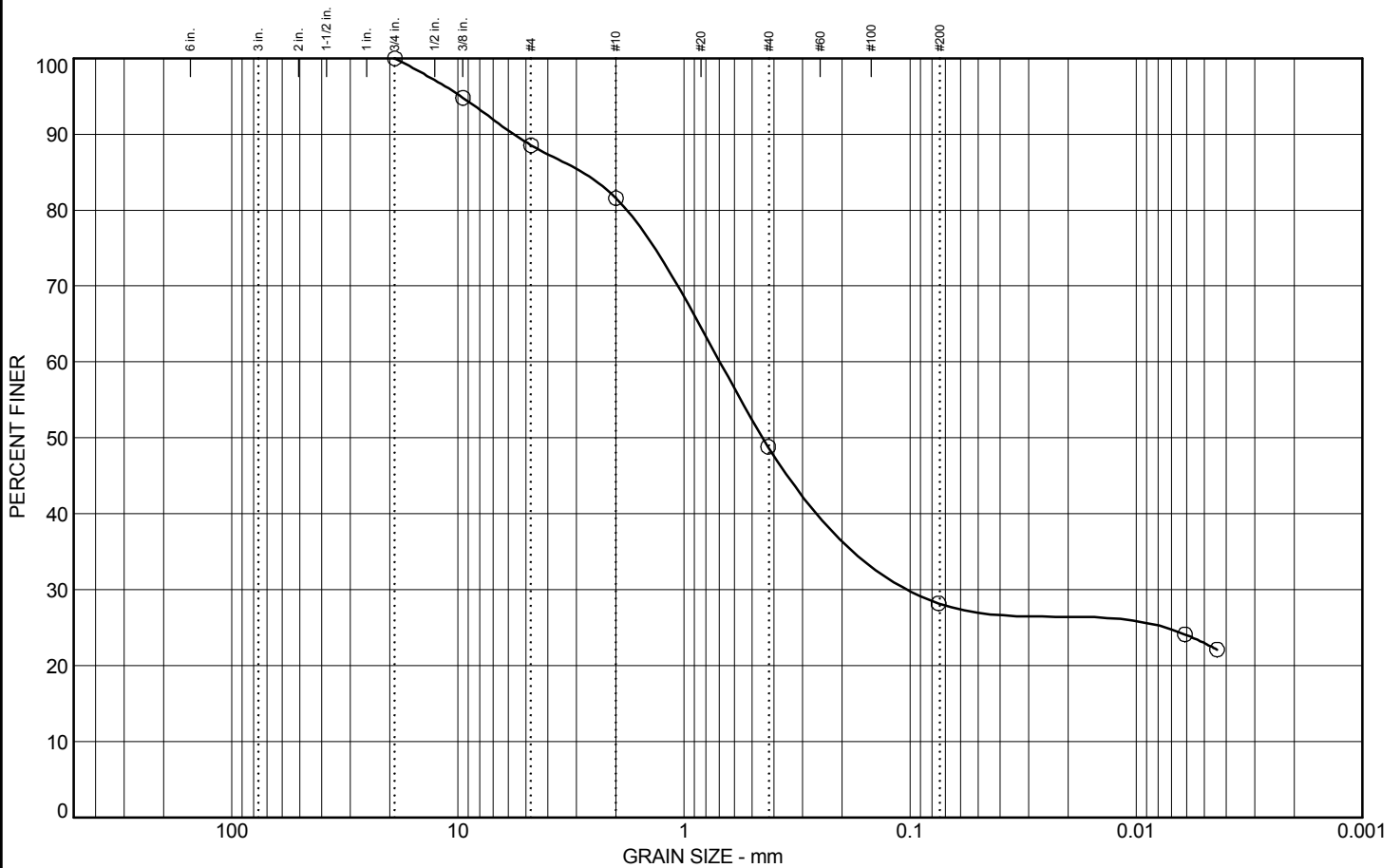


PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	18.4	32.9	20.5	5.3	22.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.8		
4.75	88.5		
2	81.6		
0.425	48.8		
0.075	28.2		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 24.7%

Atterberg Limits

LL= 28

PL= 19

PI= 9

Coefficients

$D_{85} = 3.06$

$D_{60} = 0.721$

$D_{50} = 0.449$

$D_{30} = 0.087$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-2-4

Remarks

Group Index = 0

Sample No.: 7

Source of Sample: B-016-0

Location: -

Date:

Depth / Elev: 15' / 708.77'



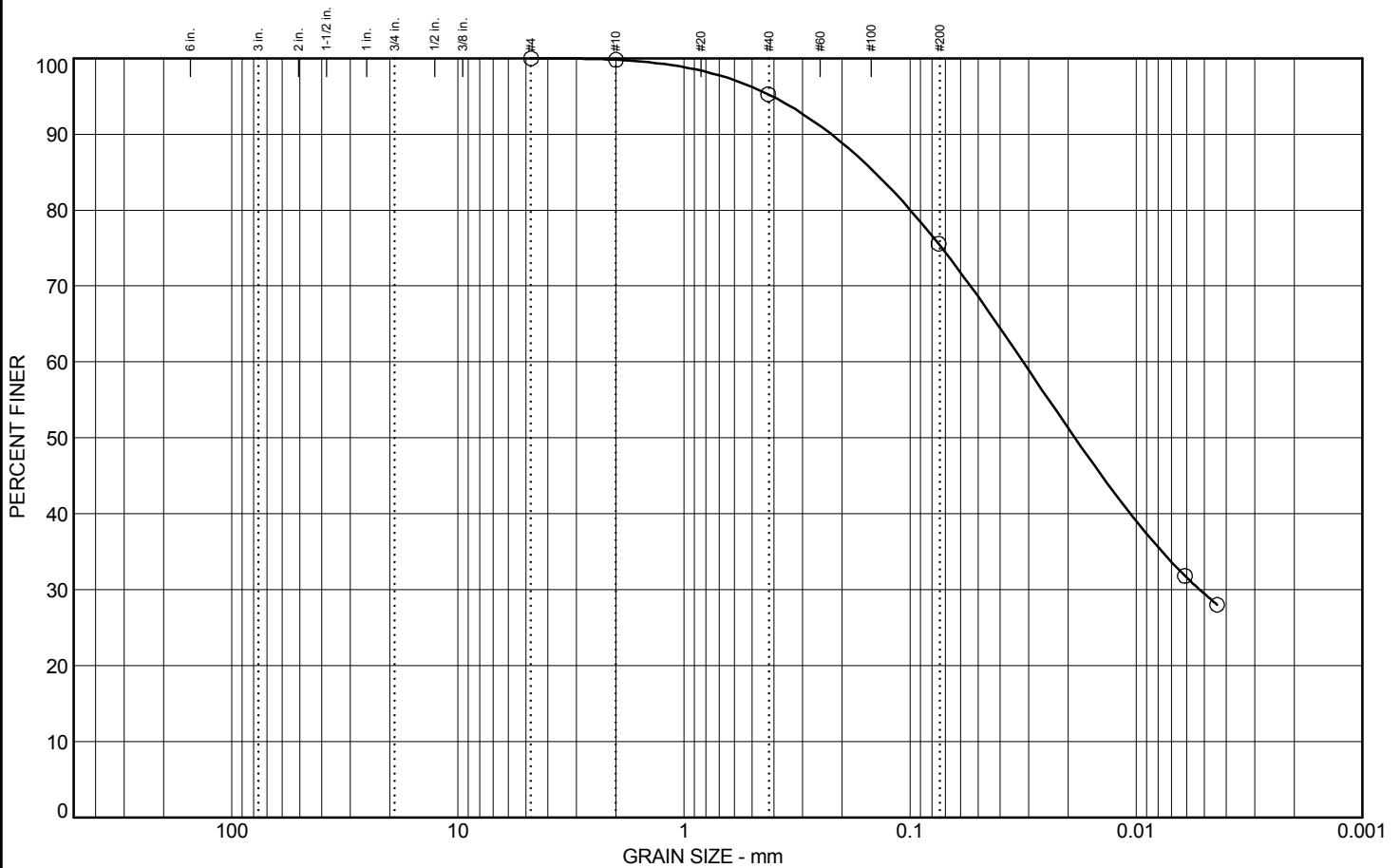
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.2	4.7	19.6	46.1	29.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	99.8		
0.425	95.3		
0.075	75.6		

* (no specification provided)

Soil Description

low plasticity clay, fine sand

General Characteristics

Moisture Content = 28.2%

Atterberg Limits

LL= 31

PL= 20

PI= 11

Coefficients

$D_{85} = 0.172$

$D_{60} = 0.031$

$D_{50} = 0.017$

$D_{30} = 0.005$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 9

Sample No.: 9

Source of Sample: B-016-0

Location: -

Date:

Depth / Elev: 18' / 705.77'



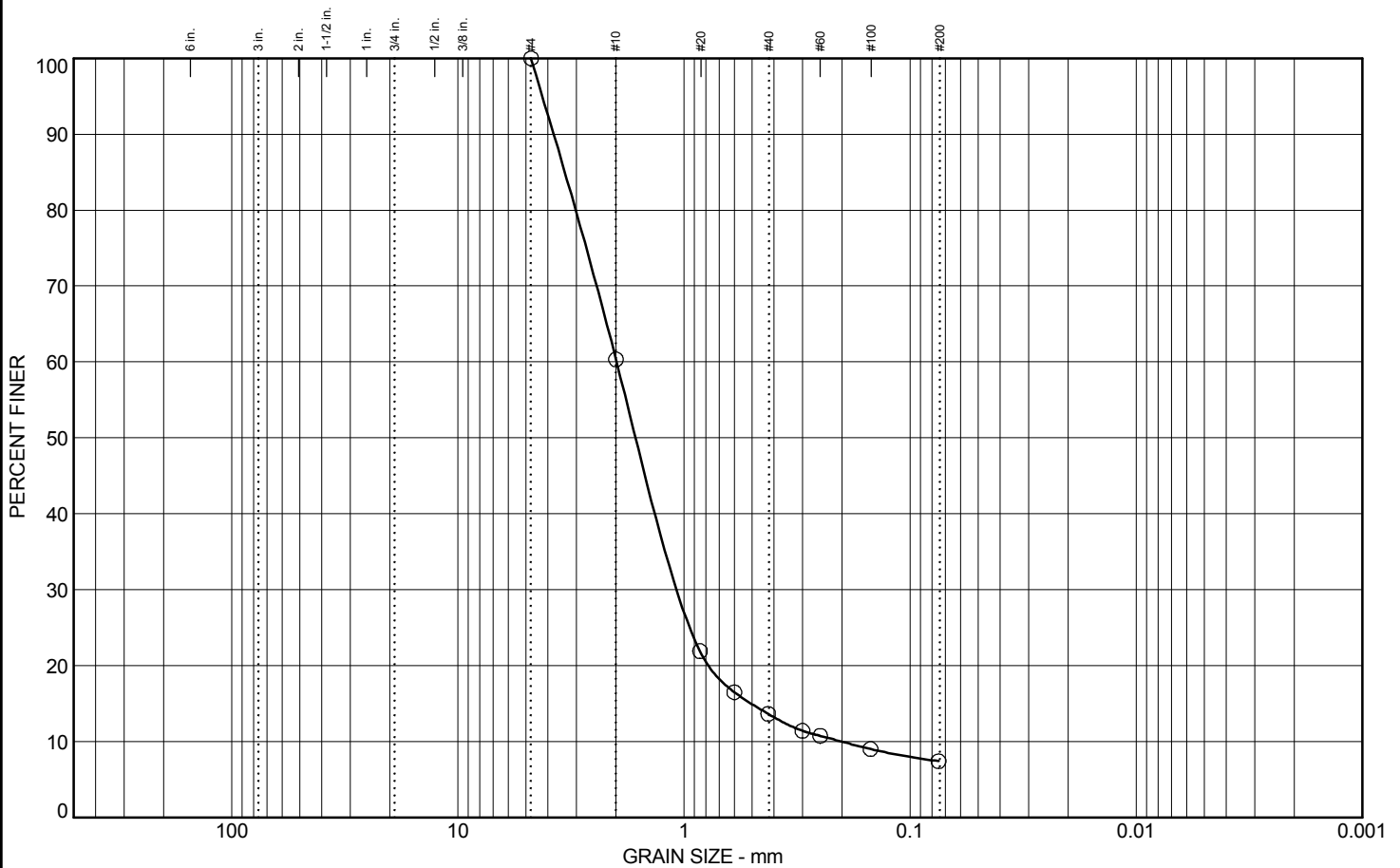
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	39.7	46.8	6.2	7.4	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	60.3		
0.85	21.9		
0.6	16.5		
0.425	13.6		
0.3	11.4		
0.25	10.7		
0.15	9.0		
0.075	7.4		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 5.0%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 3.425$

$D_{60} = 1.985$

$D_{50} = 1.589$

$D_{30} = 1.018$

$D_{15} = 0.502$

$D_{10} = 0.202$

$C_u = 9.82$

$C_c = 2.58$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 2

Source of Sample: B-017-0

Location: -

Date:

Depth / Elev: 3.5' / 734.19'



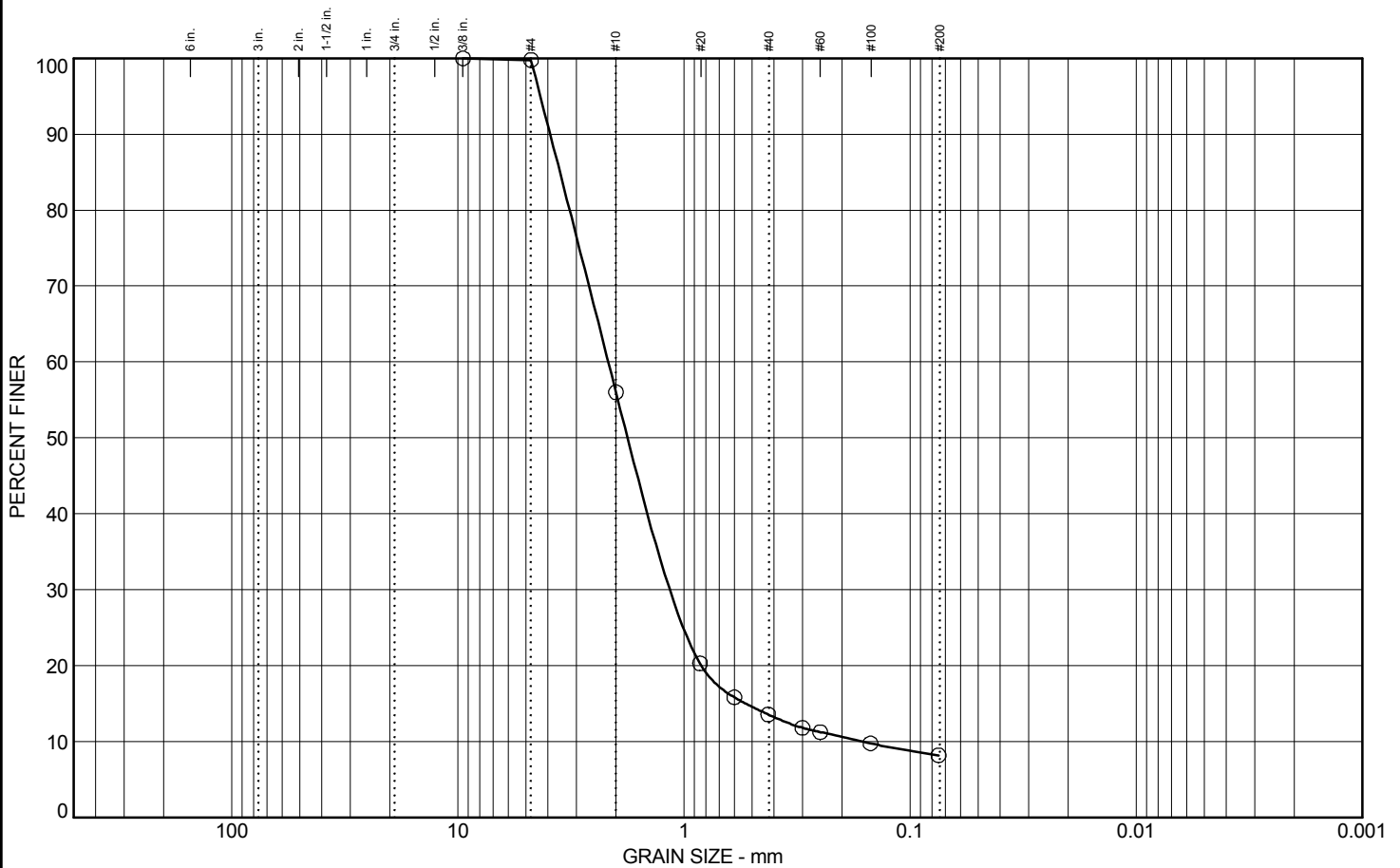
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	44.0	42.5	5.3	8.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	99.8		
2	56.0		
0.85	20.3		
0.6	15.8		
0.425	13.5		
0.3	11.8		
0.25	11.2		
0.15	9.7		
0.075	8.2		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 5.8%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 3.547$

$D_{60} = 2.165$

$D_{50} = 1.732$

$D_{30} = 1.073$

$D_{15} = 0.531$

$D_{10} = 0.165$

$C_u = 13.16$

$C_c = 3.23$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 3

Source of Sample: B-017-0

Location: -

Date:

Depth / Elev: 5' / 732.69'



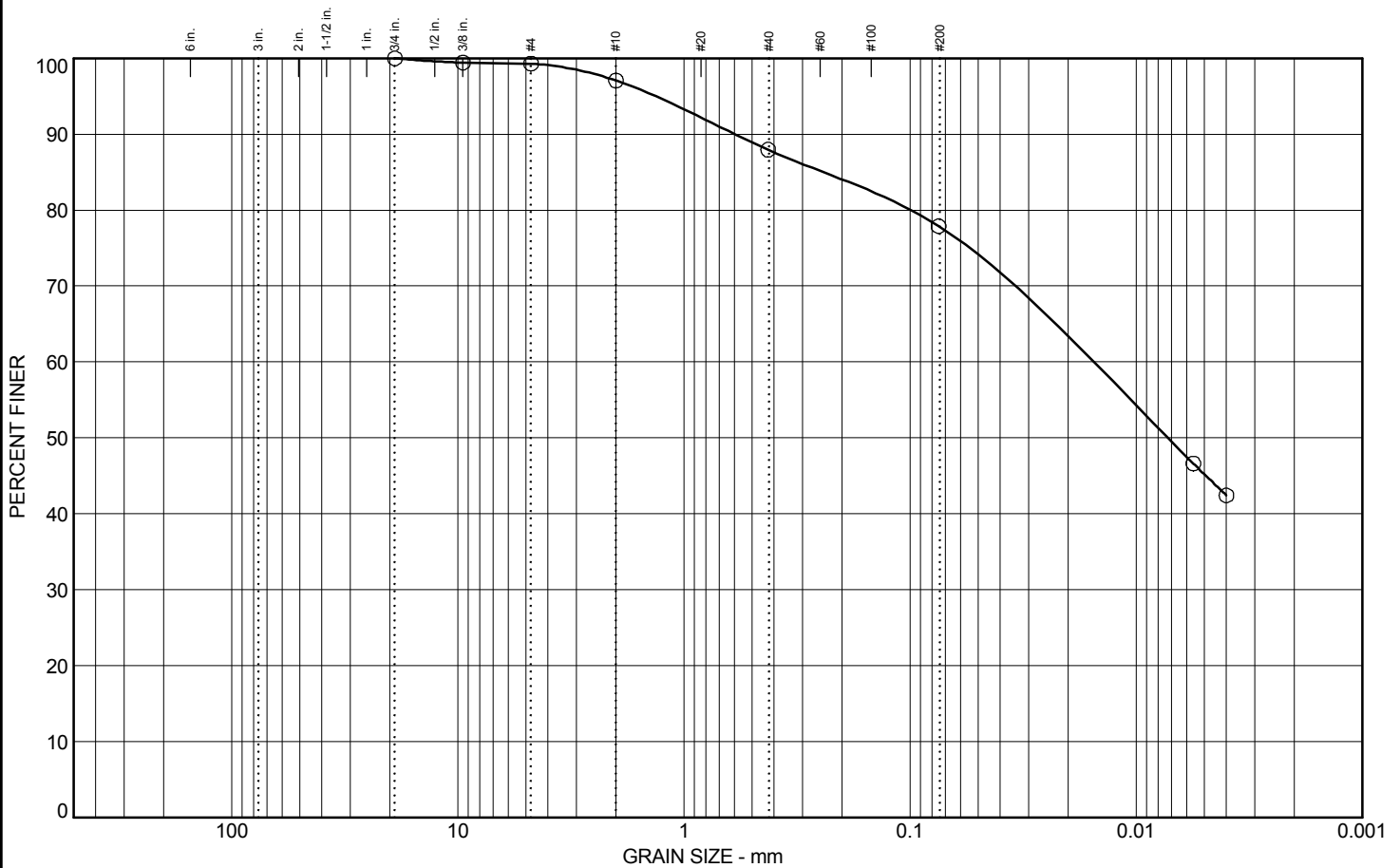
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	2.9	9.2	10.0	32.7	45.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.4		
4.75	99.3		
2	97.1		
0.425	88.0		
0.075	77.9		

* (no specification provided)

Soil Description

moderate plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 21.8%

Atterberg Limits

LL= 36

PL= 18

PI= 18

Coefficients

$D_{85} = 0.255$

$D_{60} = 0.017$

$D_{50} = 0.007$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6b

Remarks

Group Index = 11

Sample No.: 4

Source of Sample: B-017-0

Location: -

Date:

Depth / Elev: 6.5' / 731.19'



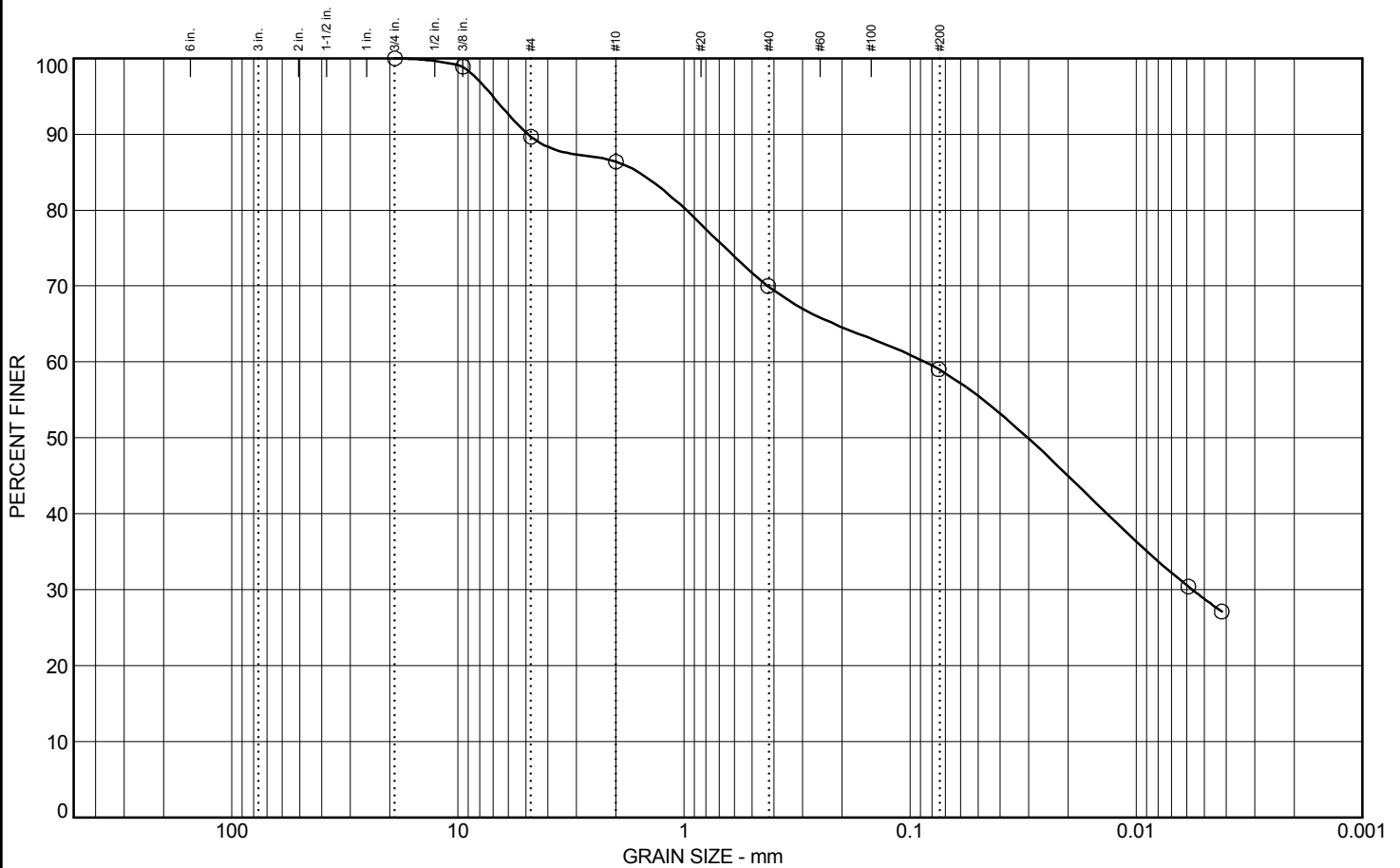
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	13.6	16.5	10.9	30.2	28.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.9		
4.75	89.7		
2	86.4		
0.425	70.0		
0.075	59.0		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 19.0%

Atterberg Limits

LL= 33

PL= 16

PI= 17

Coefficients

$D_{85} = 1.755$

$D_{60} = 0.087$

$D_{50} = 0.034$

$D_{30} = 0.006$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6b

Remarks

Group Index = 8

Sample No.: 2

Source of Sample: B-018

Location: -

Date:

Depth / Elev: 3.5' / 736.94'



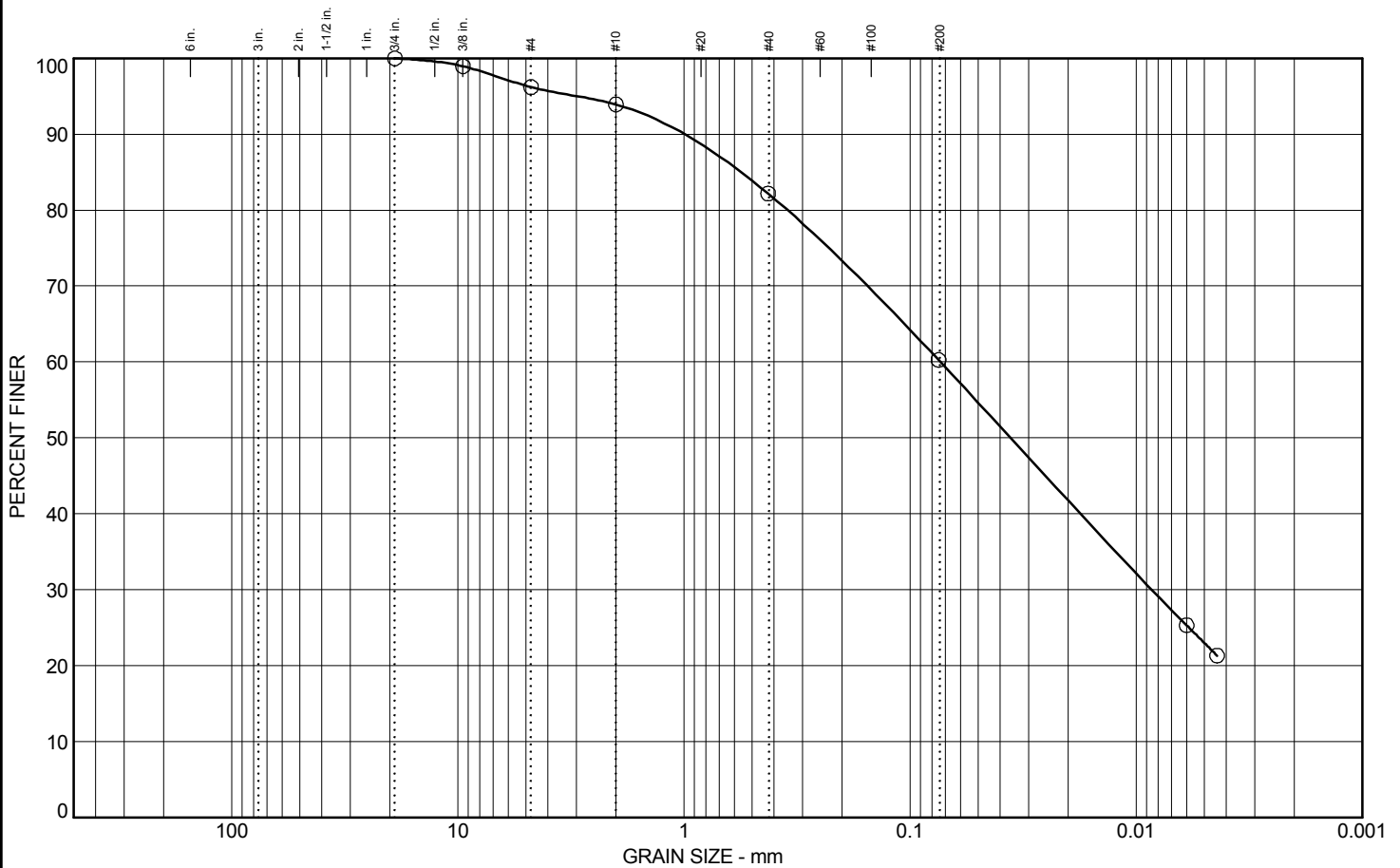
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.1	11.9	21.8	37.3	22.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.0		
4.75	96.2		
2	93.9		
0.425	82.2		
0.075	60.3		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.1%

Atterberg Limits

LL= 23

PL= 15

PI= 8

Coefficients

$D_{85} = 0.617$

$D_{60} = 0.074$

$D_{50} = 0.036$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 3

Source of Sample: B-020

Location: -

Date:

Depth / Elev: 6' / 728.76'



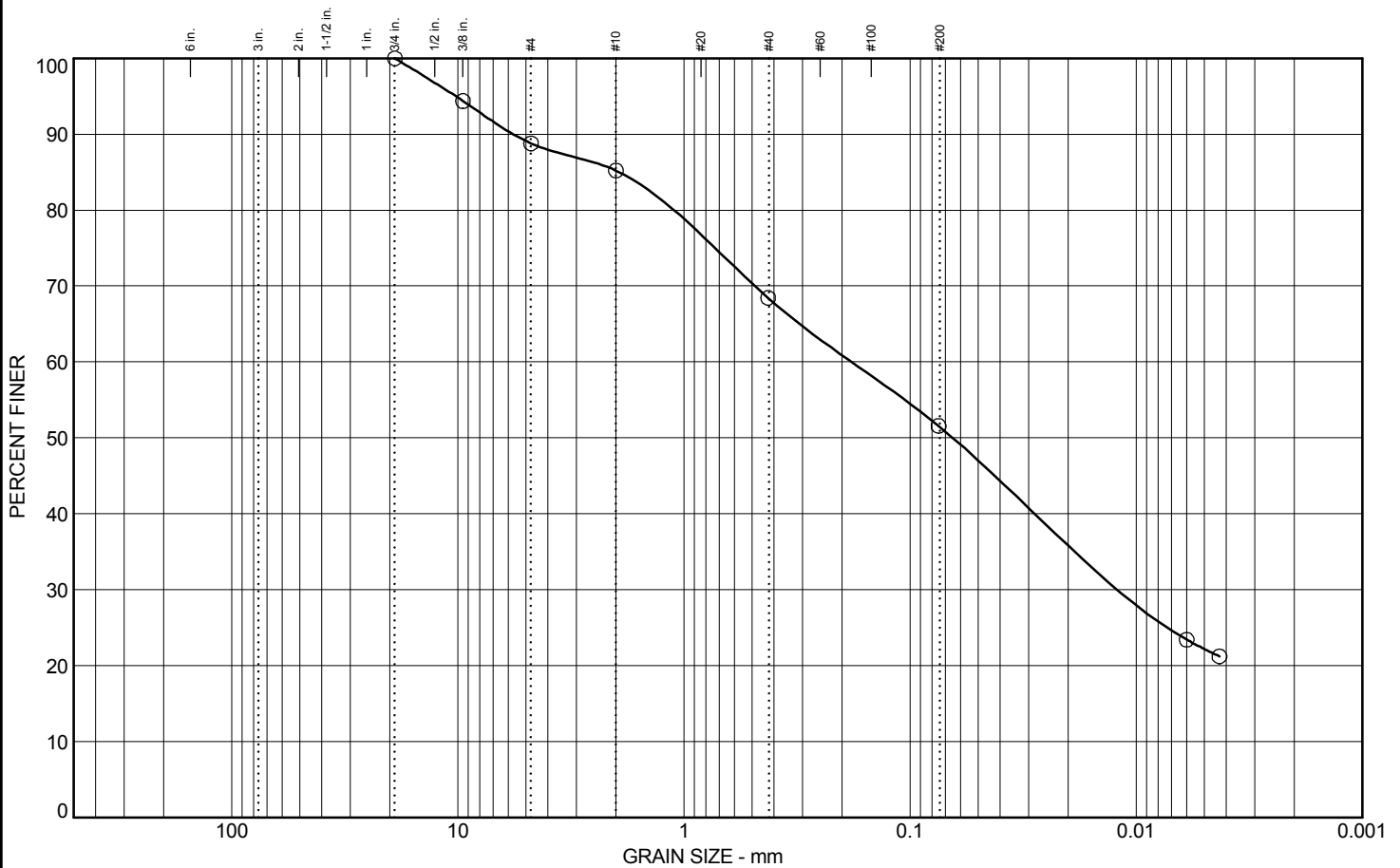
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	14.8	16.9	16.7	29.4	22.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.4		
4.75	88.8		
2	85.2		
0.425	68.4		
0.075	51.6		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 12.7%

Atterberg Limits

LL = 29

PL = 15

PI = 14

Coefficients

$D_{85} = 1.961$

$D_{60} = 0.179$

$D_{50} = 0.065$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 5

Sample No.: 1

Source of Sample: B-022

Location: -

Date:

Depth / Elev: 1.5' / 736.51'



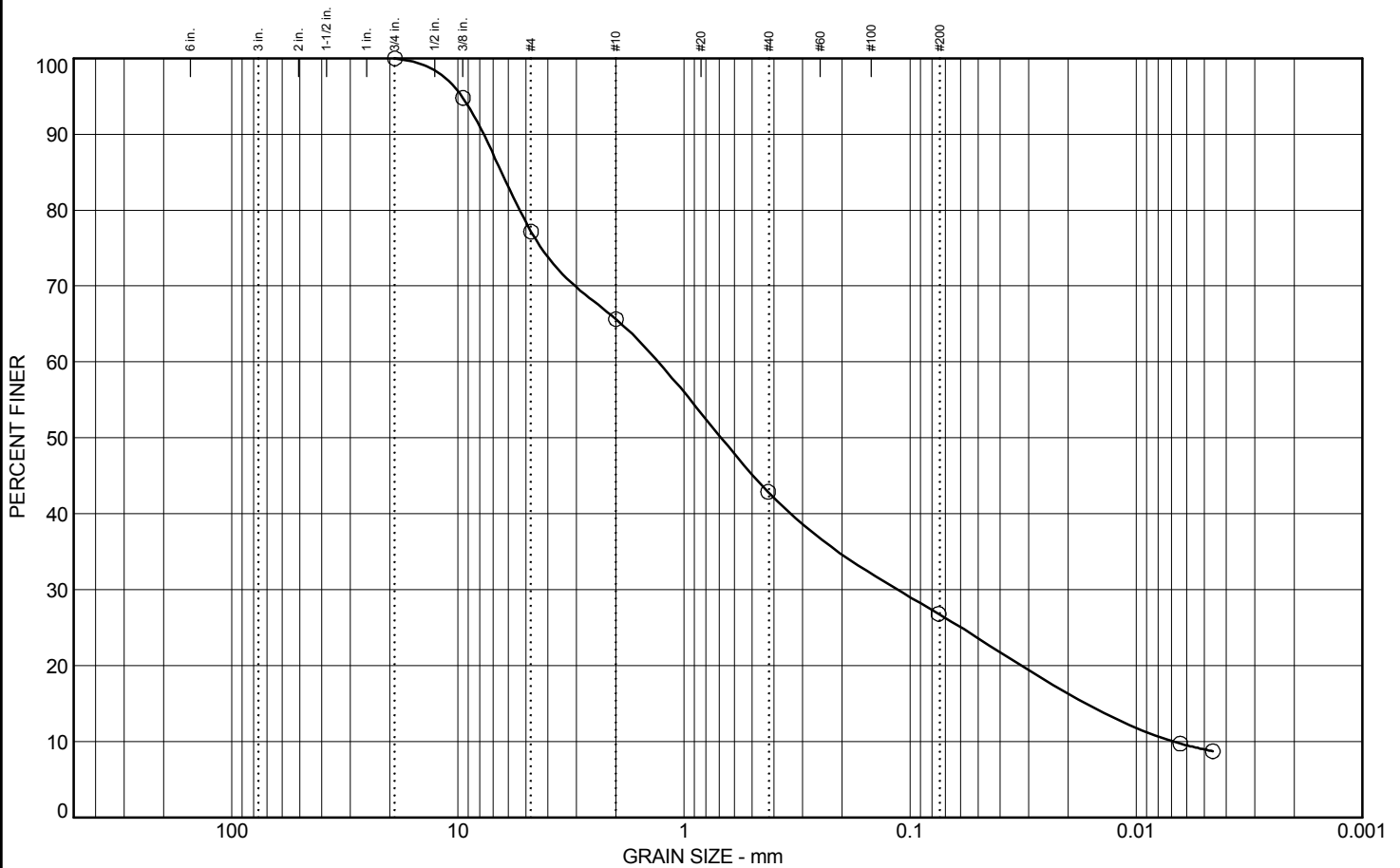
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	34.4	22.9	16.0	17.9	9.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.8		
4.75	77.2		
2	65.6		
0.425	42.9		
0.075	26.8		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity silt, fine gravel

General Characteristics

Moisture Content = 11.1%

Atterberg Limits

LL= 21

PL= 18

PI= 3

Coefficients

$D_{85} = 6.464$

$D_{60} = 1.363$

$D_{50} = 0.69$

$D_{30} = 0.106$

$D_{15} = 0.014$

$D_{10} = 0.007$

$C_u = 203.90$

$C_c = 1.23$

Classification

ODOT = A-2-4

Remarks

Group Index = 0

Sample No.: 2

Source of Sample: B-022

Location: -

Date:

Depth / Elev: 3' / 735.01'



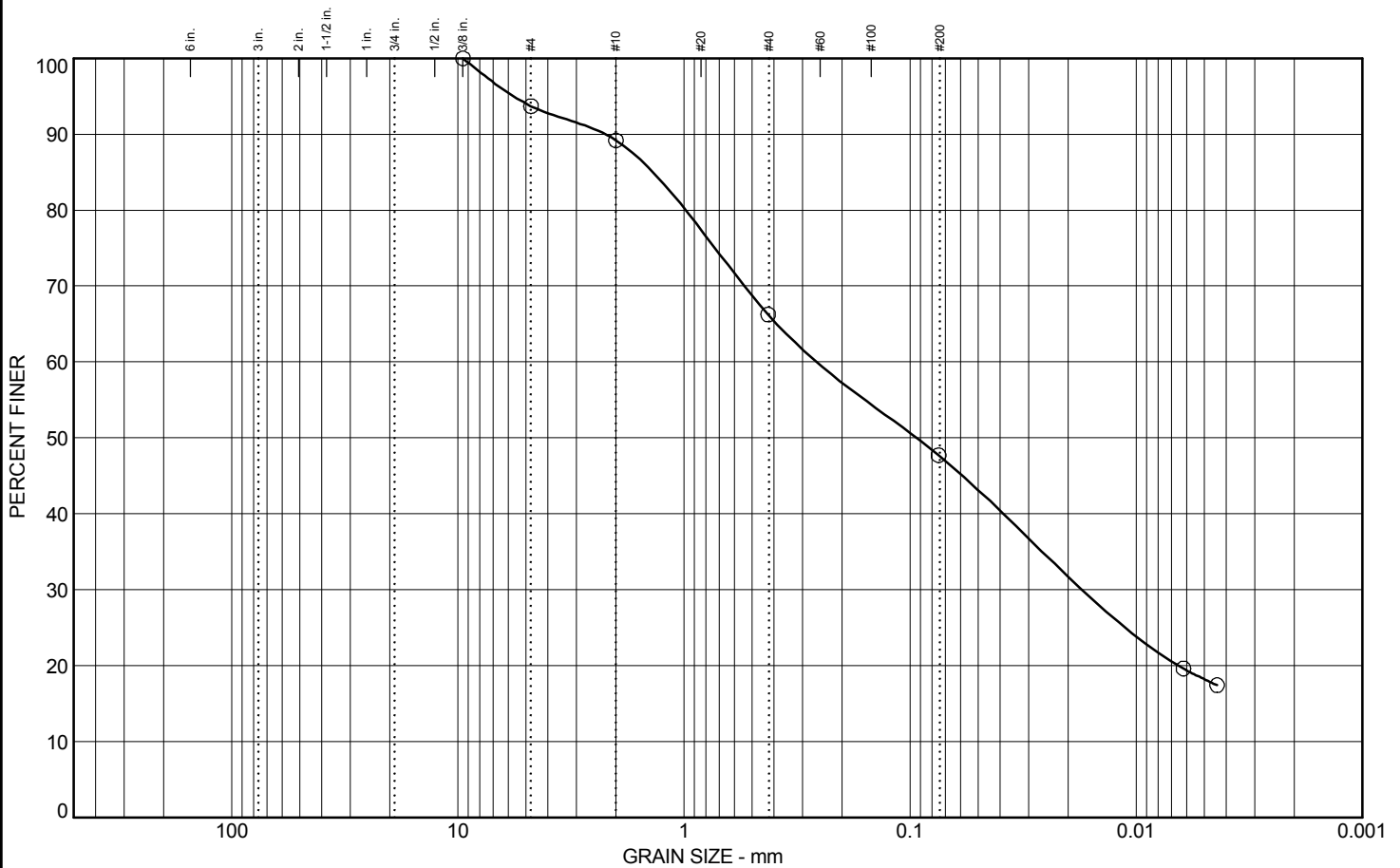
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.8	23.1	18.4	29.5	18.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	93.7		
2	89.2		
0.425	66.2		
0.075	47.7		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 12.9%

Atterberg Limits

LL= 28

PL= 18

PI= 10

Coefficients

$D_{85} = 1.507$

$D_{60} = 0.237$

$D_{50} = 0.093$

$D_{30} = 0.016$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 3

Source of Sample: B-022

Location: -

Date:

Depth / Elev: 4.5' / 733.51'



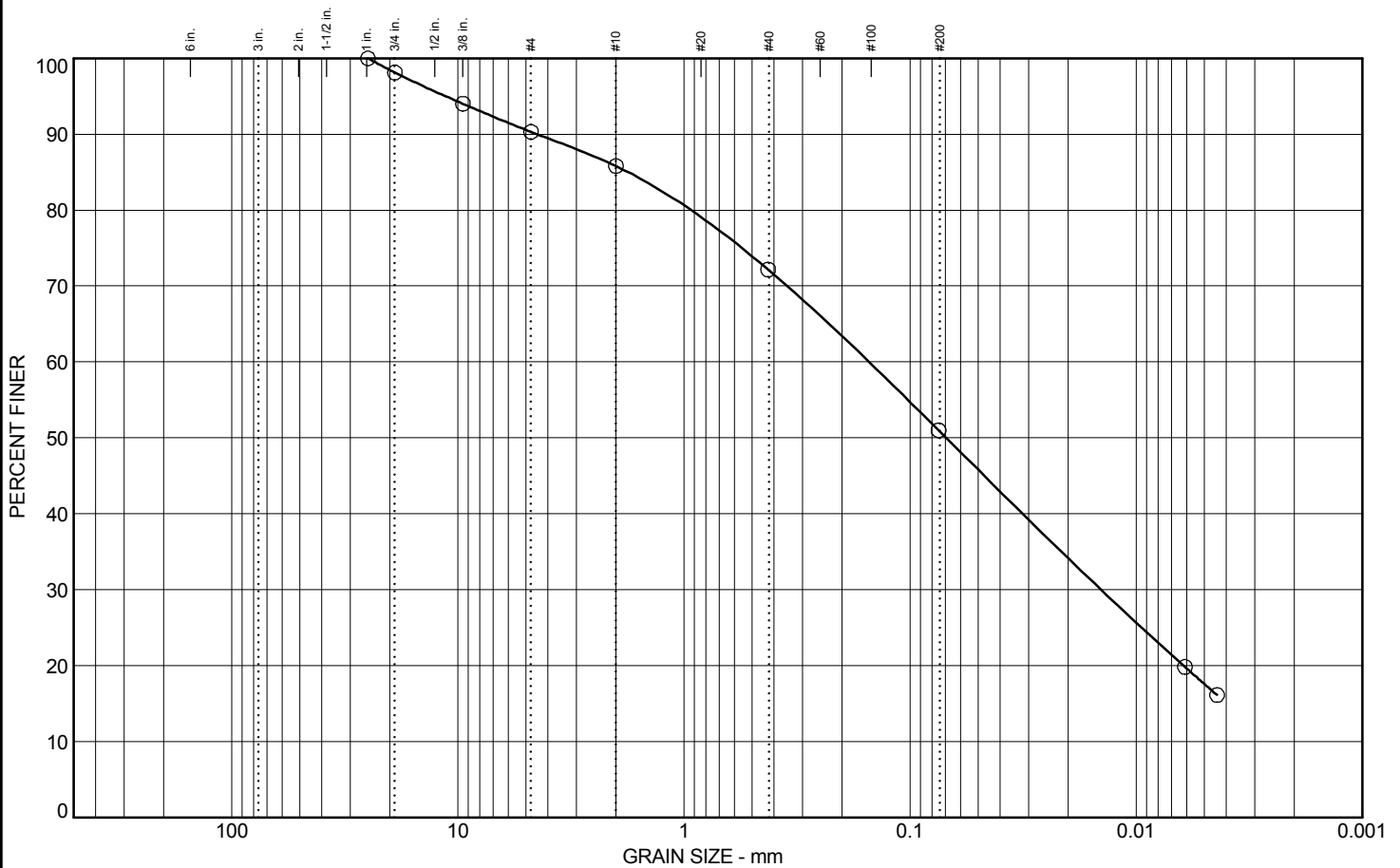
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	1.9	12.3	13.8	21.0	33.4	17.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	98.1		
9.5	94.0		
4.75	90.3		
2	85.8		
0.425	72.2		
0.075	51.0		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 18.5%

Atterberg Limits

LL= 29

PL= 18

PI= 11

Coefficients

$D_{85} = 1.826$

$D_{60} = 0.157$

$D_{50} = 0.069$

$D_{30} = 0.014$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 4

Sample No.: P1

Source of Sample: B-023

Location: -

Date:

Depth / Elev: 4' / 717.95'



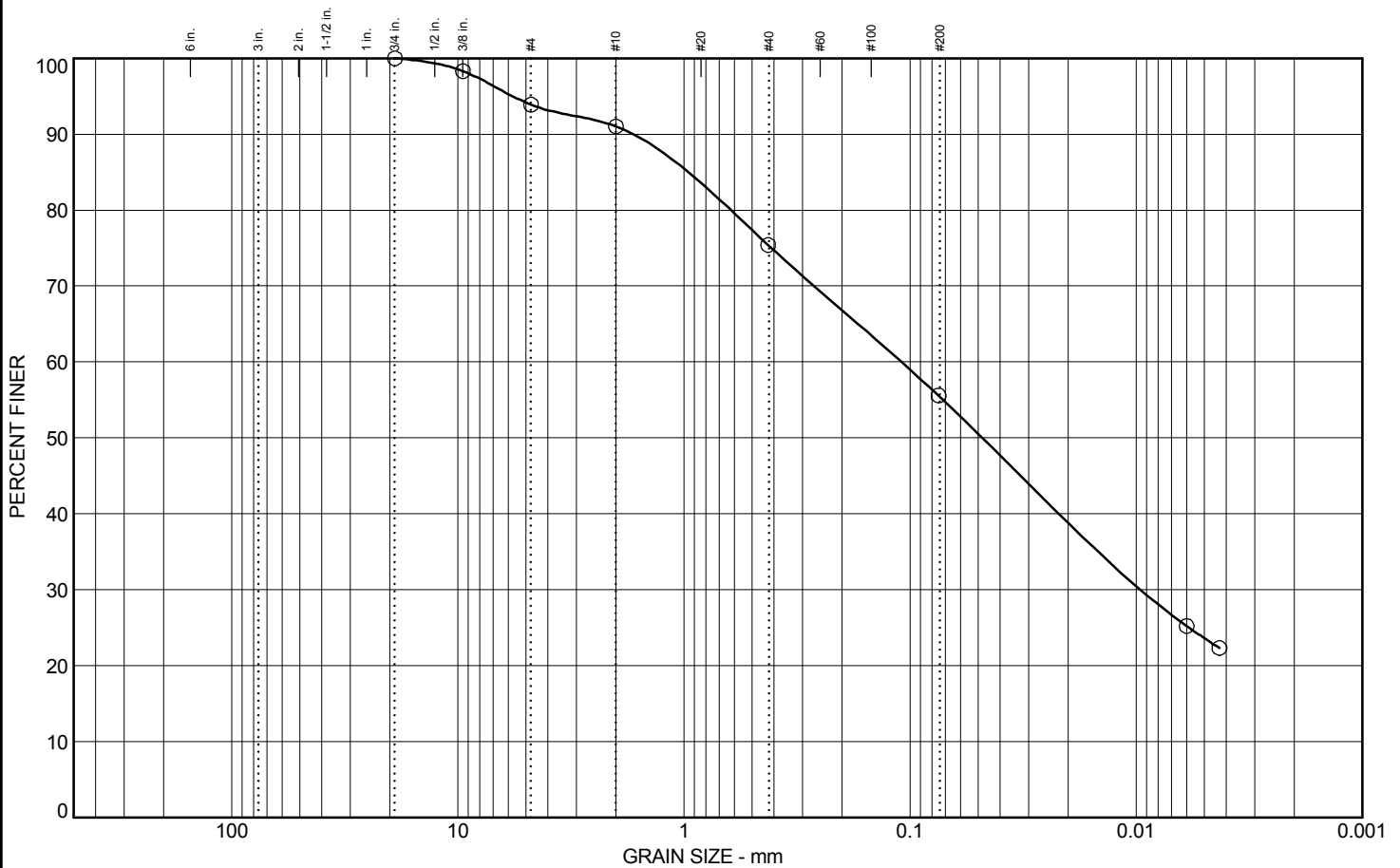
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.0	15.8	19.7	32.0	23.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.3		
4.75	93.9		
2	91.0		
0.425	75.4		
0.075	55.6		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 19.2%

Atterberg Limits

LL= 28

PL= 18

PI= 10

Coefficients

$D_{85} = 1.1$

$D_{30} = 0.009$

$C_u =$

$D_{60} = 0.11$

$D_{15} =$

$C_c =$

$D_{50} = 0.047$

$D_{10} =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: P2

Location: -

Source of Sample: B-023

Date:

Depth / Elev: 6' / 715.95'



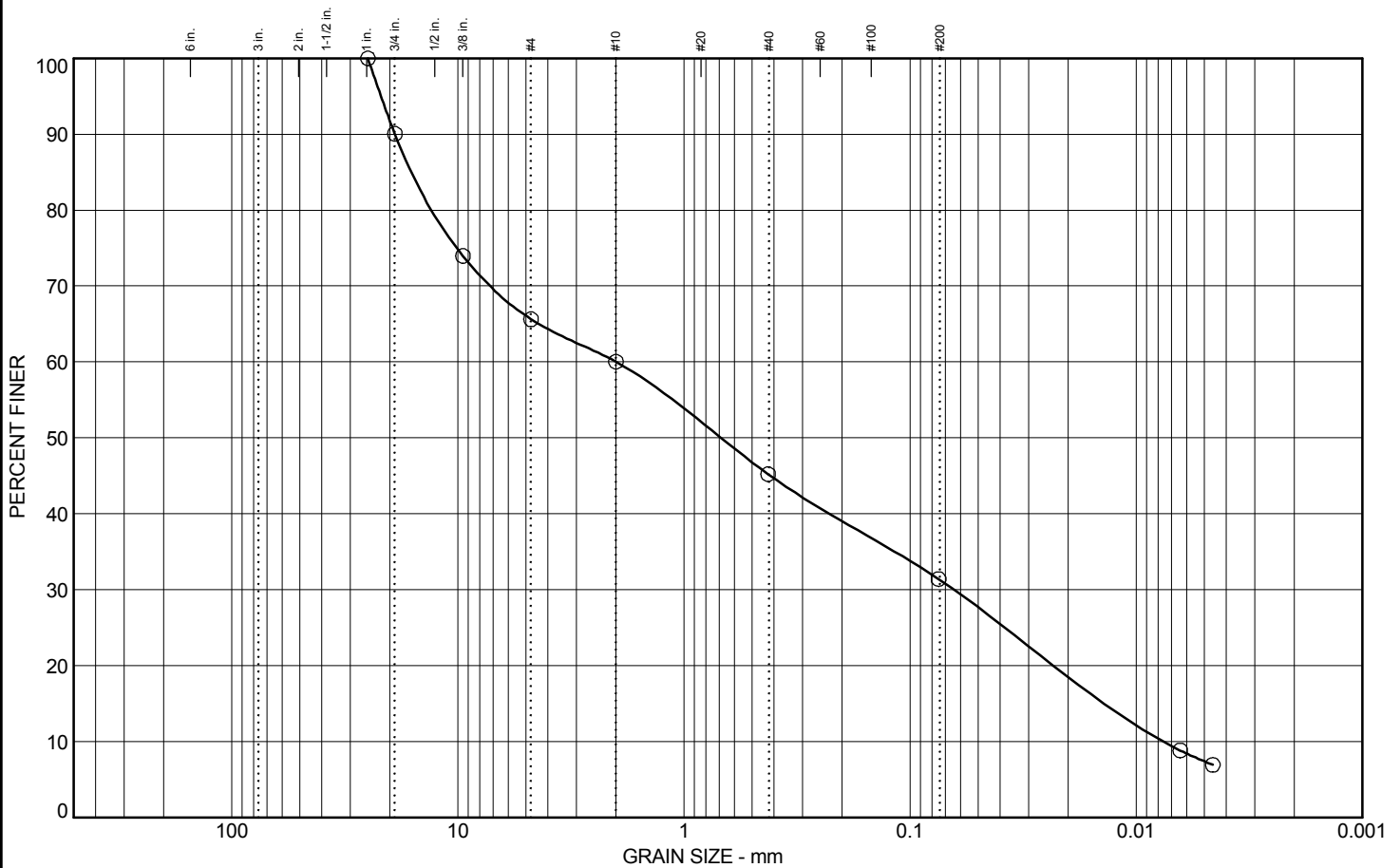
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	10.0	30.0	14.9	13.7	24.0	7.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	90.0		
9.5	74.0		
4.75	65.6		
2	60.0		
0.425	45.2		
0.075	31.4		

* (no specification provided)

Soil Description

fine gravel, low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.4%

Atterberg Limits

LL= 25

PL= 18

PI= 7

Coefficients

$D_{85} = 15.286$

$D_{60} = 1.996$

$D_{50} = 0.702$

$D_{30} = 0.064$

$D_{15} = 0.013$

$D_{10} = 0.007$

$C_u = 273.67$

$C_c = 0.29$

Classification

ODOT = A-2-4

Remarks

Group Index = 0

Sample No.: 7

Source of Sample: B-023

Location: -

Date:

Depth / Elev: 16' / 705.95'



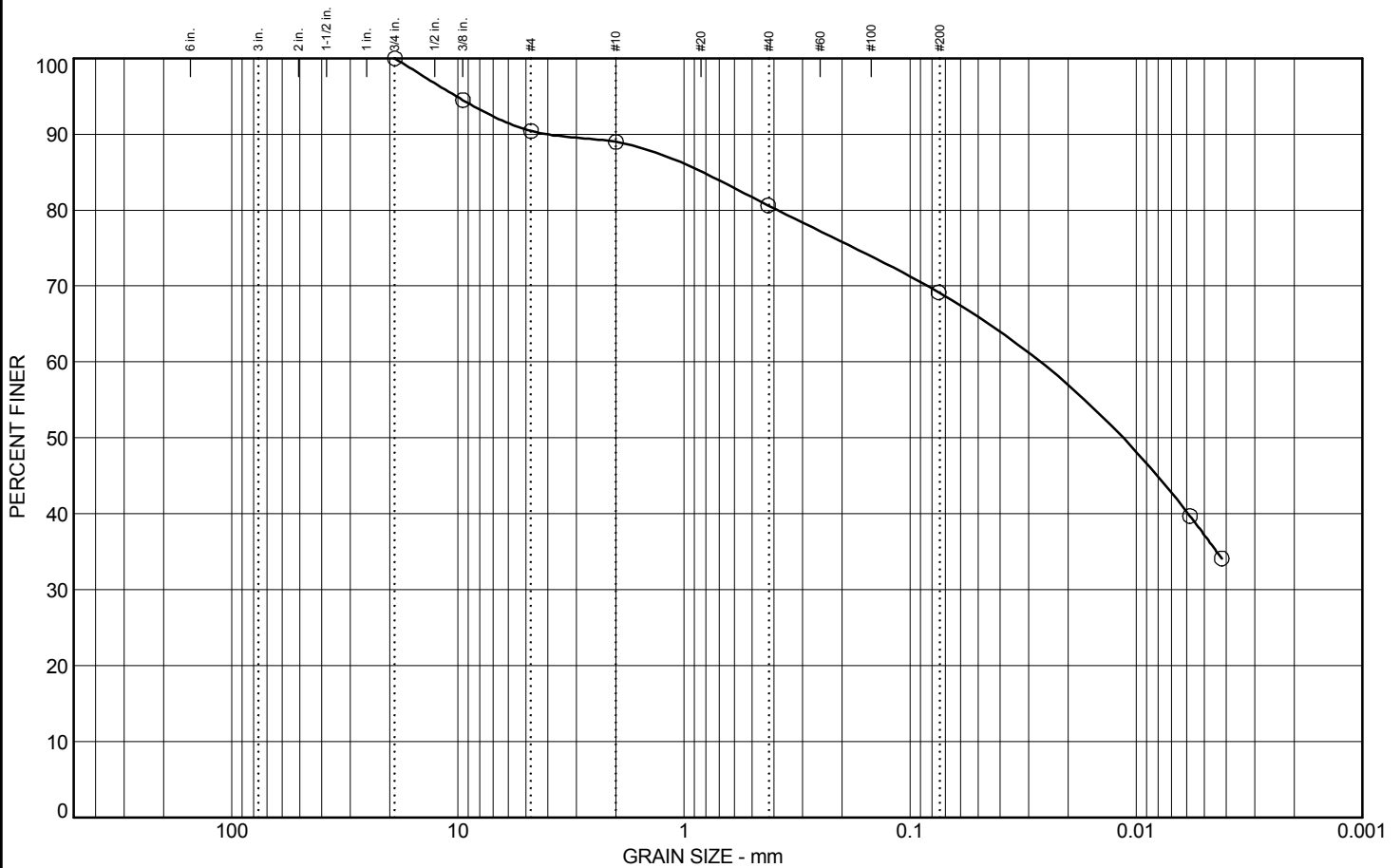
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	11.0	8.4	11.4	32.0	37.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.5		
4.75	90.4		
2	89.0		
0.425	80.6		
0.075	69.2		

* (no specification provided)

Soil Description

moderate plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 16.7%

Atterberg Limits

LL= 38

PL= 16

PI= 22

Coefficients

$D_{85} = 0.956$

$D_{60} = 0.034$

$D_{50} = 0.014$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6b

Remarks

Group Index = 12

Sample No.: 1

Source of Sample: B-024

Location: -

Date:

Depth / Elev: 0' / 743.43'



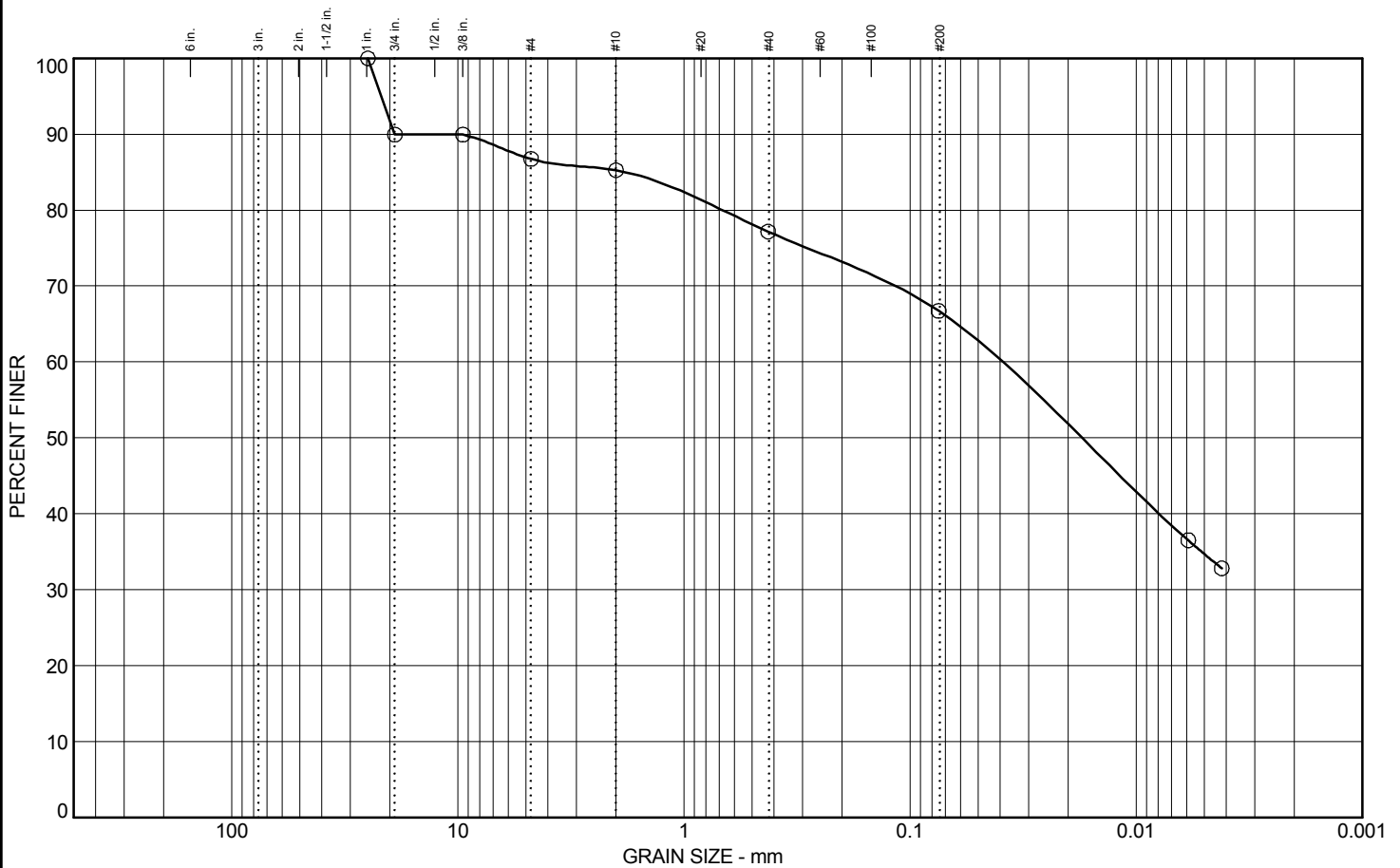
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	10.1	4.7	8.2	10.4	32.0	34.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	89.9		
9.5	89.9		
4.75	86.7		
2	85.3		
0.425	77.2		
0.075	66.7		

* (no specification provided)

Soil Description

moderate plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 13.1%

Atterberg Limits

LL= 37

PL= 16

PI= 21

Coefficients

$D_{85} = 1.903$

$D_{60} = 0.043$

$D_{50} = 0.018$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6b

Remarks

Group Index = 11

Sample No.: 2

Source of Sample: B-024

Location: -

Date:

Depth / Elev: 1.5' / 741.93'



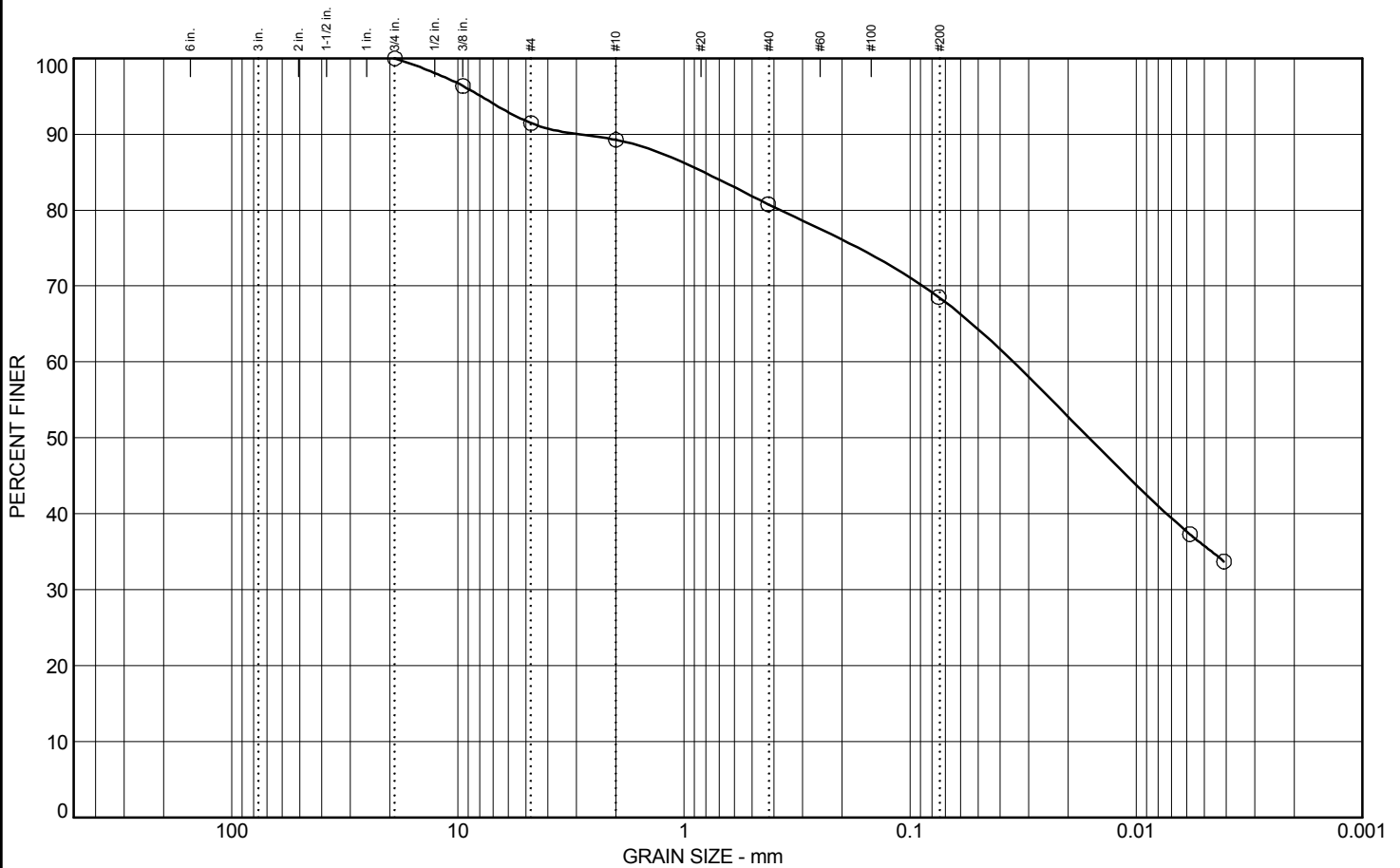
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.7	8.6	12.1	32.8	35.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.4		
4.75	91.5		
2	89.3		
0.425	80.8		
0.075	68.6		

* (no specification provided)

Soil Description

moderate plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 15.9%

Atterberg Limits

LL= 36

PL= 13

PI= 23

Coefficients

$D_{85} = 0.918$

$D_{60} = 0.037$

$D_{50} = 0.016$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6b

Remarks

Group Index = 12

Sample No.: 3

Source of Sample: B-024

Location: -

Date:

Depth / Elev: 3' / 740.43'



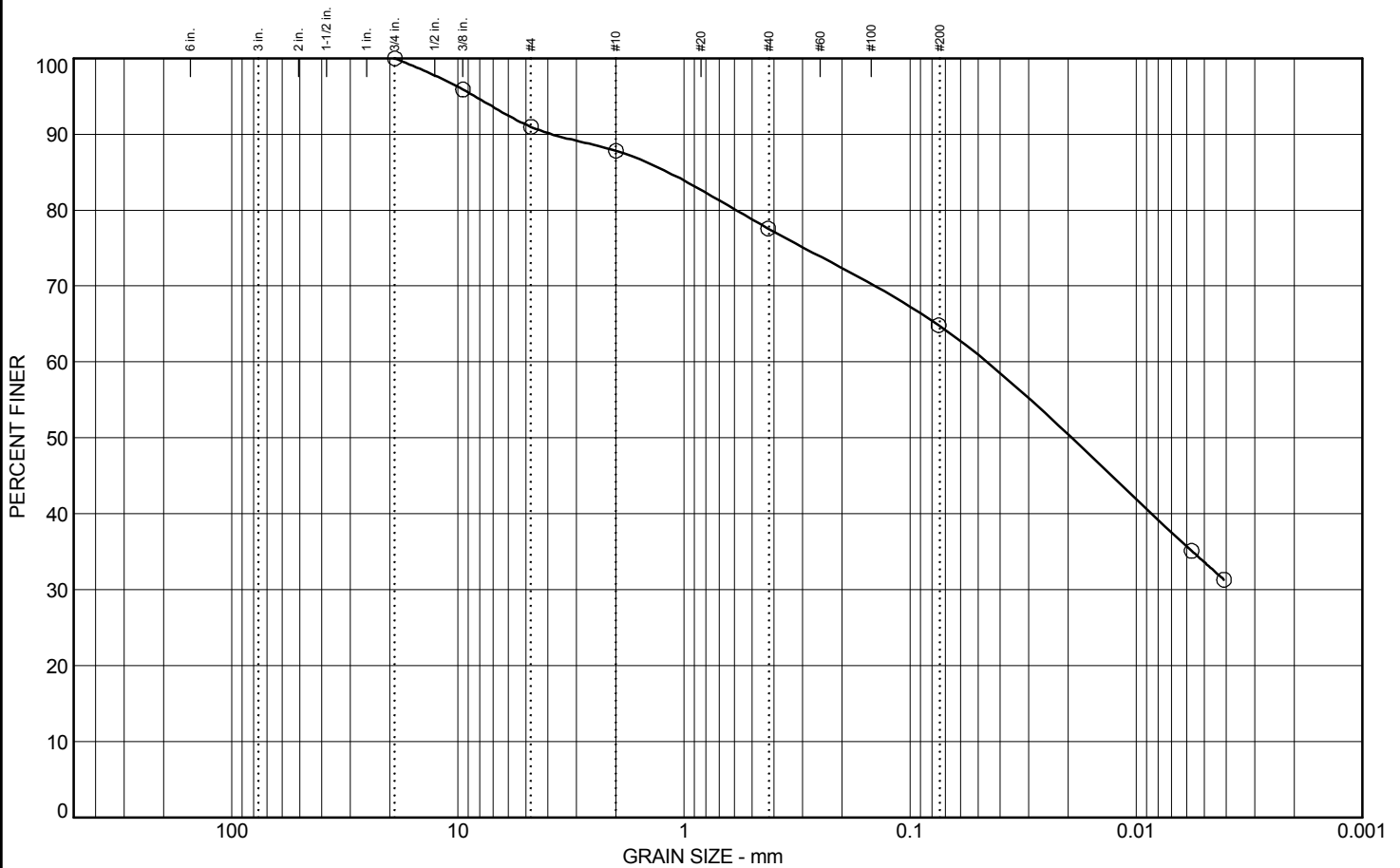
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.2	10.3	12.6	31.2	33.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.9		
4.75	91.0		
2	87.8		
0.425	77.6		
0.075	64.8		

* (no specification provided)

Soil Description

moderate plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 16.5%

Atterberg Limits

LL= 36

PL= 17

PI= 19

Coefficients

$D_{85} = 1.307$

$D_{60} = 0.049$

$D_{50} = 0.021$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6b

Remarks

Group Index = 10

Sample No.: 4

Source of Sample: B-024

Location: -

Date:

Depth / Elev: 4.5' / 738.93'



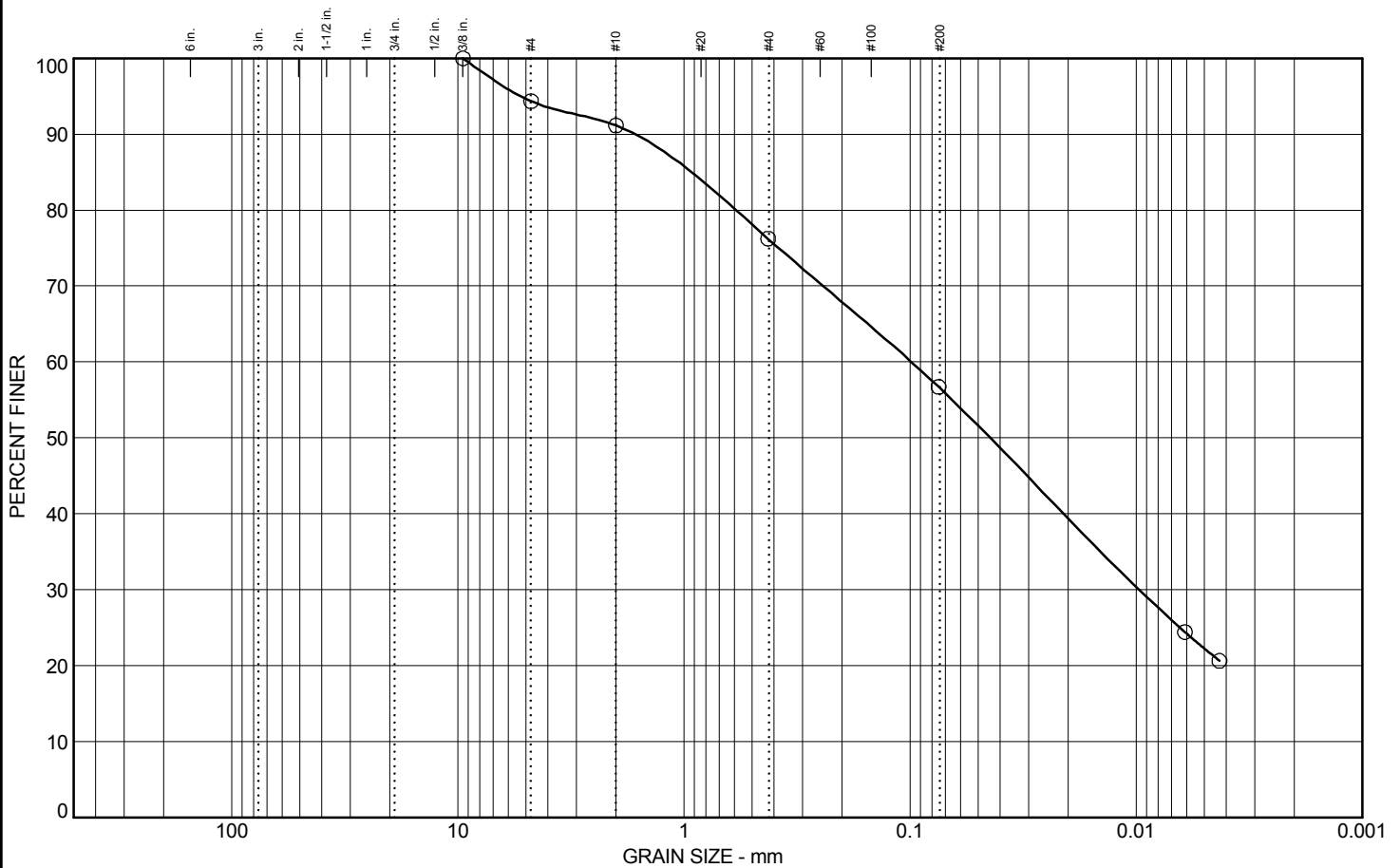
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.8	15.0	19.4	34.5	22.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	94.4		
2	91.2		
0.425	76.2		
0.075	56.7		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.1%

Atterberg Limits

LL= 21

PL= 13

PI= 8

Coefficients

$D_{85} = 1.055$

$D_{60} = 0.1$

$D_{50} = 0.045$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 9

Source of Sample: B-024

Location: -

Date:

Depth / Elev: 18.5' / 724.93'



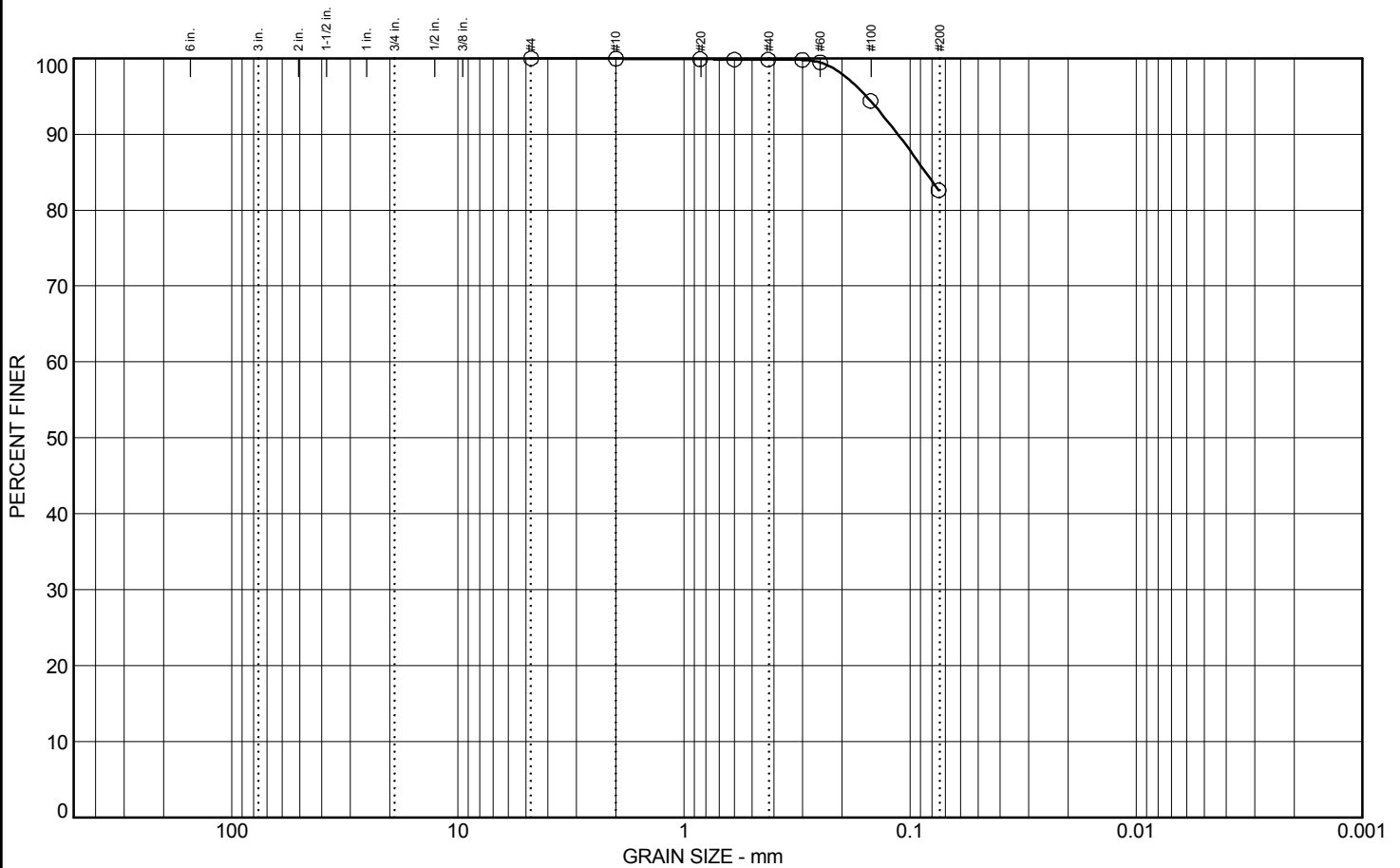
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.0	0.1	17.2	82.6	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	100.0		
0.85	99.9		
0.6	99.8		
0.425	99.8		
0.3	99.8		
0.25	99.5		
0.15	94.4		
0.075	82.6		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 24.8%

Atterberg Limits

LL =

PL =

PI = Non-plastic

Coefficients

$D_{85} = 0.086$

$D_{60} =$

$D_{50} =$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT =

Remarks

Group Index =

Can not classify, No limits

Sample No.: 13

Location: -

Source of Sample: B-024

Date:

Depth / Elev: 28.5' / 714.93'



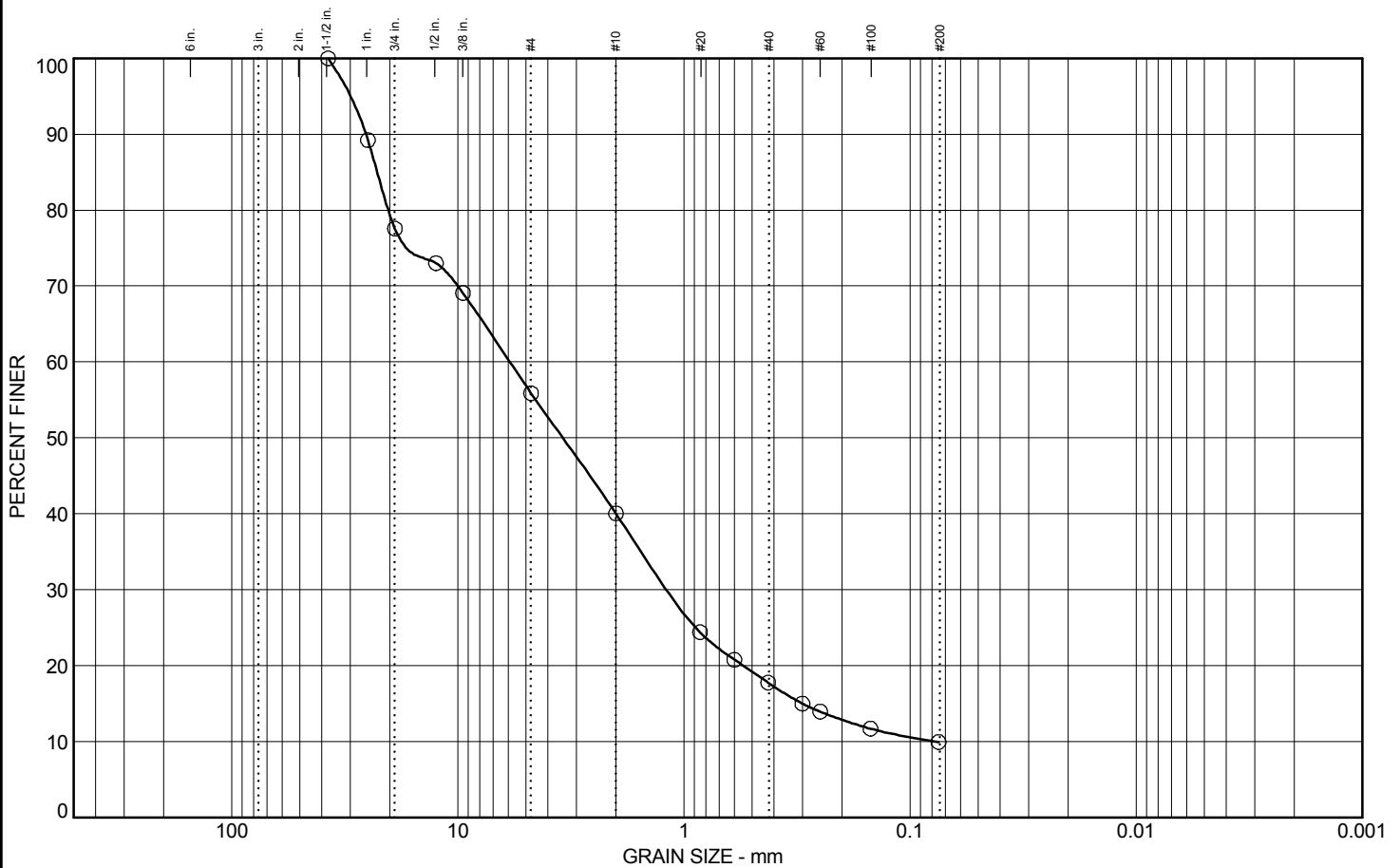
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	22.4	37.5	22.4	7.7	9.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
37.5	100.0		
25	89.2		
19	77.6		
12.5	73.0		
9.5	69.1		
4.75	55.9		
2	40.0		
0.85	24.4		
0.6	20.8		
0.425	17.7		
0.3	15.0		
0.25	13.9		
0.15	11.7		
0.075	9.9		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine to coarse gravel

General Characteristics

Moisture Content = 9.9%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 22.636$ $D_{60} = 5.9$ $D_{50} = 3.447$
 $D_{30} = 1.155$ $D_{15} = 0.301$ $D_{10} = 0.078$
 $C_u = 75.95$ $C_c = 2.91$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 14

Location: -

Source of Sample: B-024

Date:

Depth / Elev: 33.5' / 709.93'



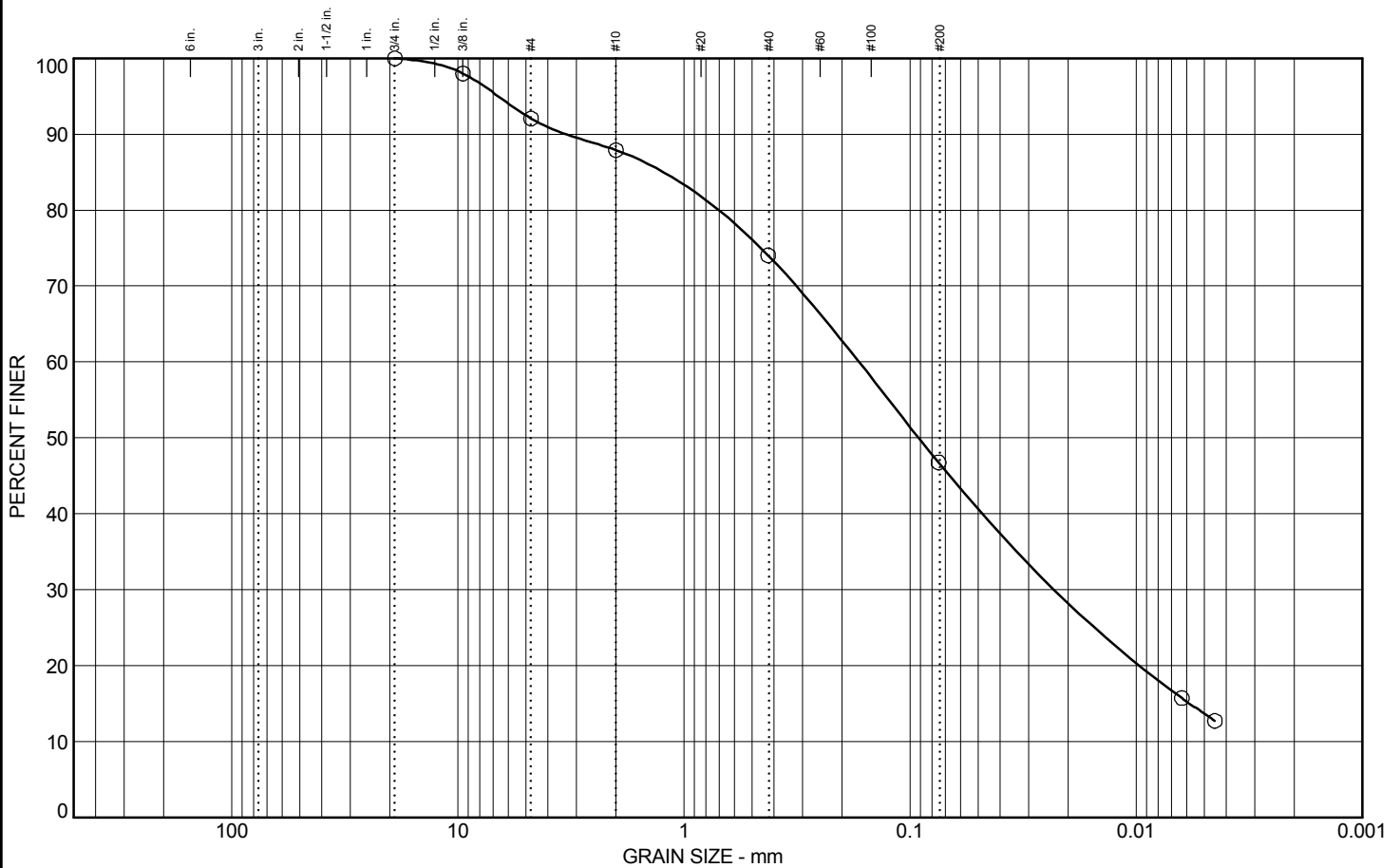
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.1	14.0	27.1	33.1	13.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.0		
4.75	92.1		
2	87.9		
0.425	74.0		
0.075	46.8		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 9.4%

Atterberg Limits

LL= 21

PL= 13

PI= 8

Coefficients

$D_{85} = 1.446$

$D_{60} = 0.174$

$D_{50} = 0.092$

$D_{30} = 0.02$

$D_{15} = 0.006$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 15

Source of Sample: B-024

Location: -

Date:

Depth / Elev: 38.5' / 704.93'



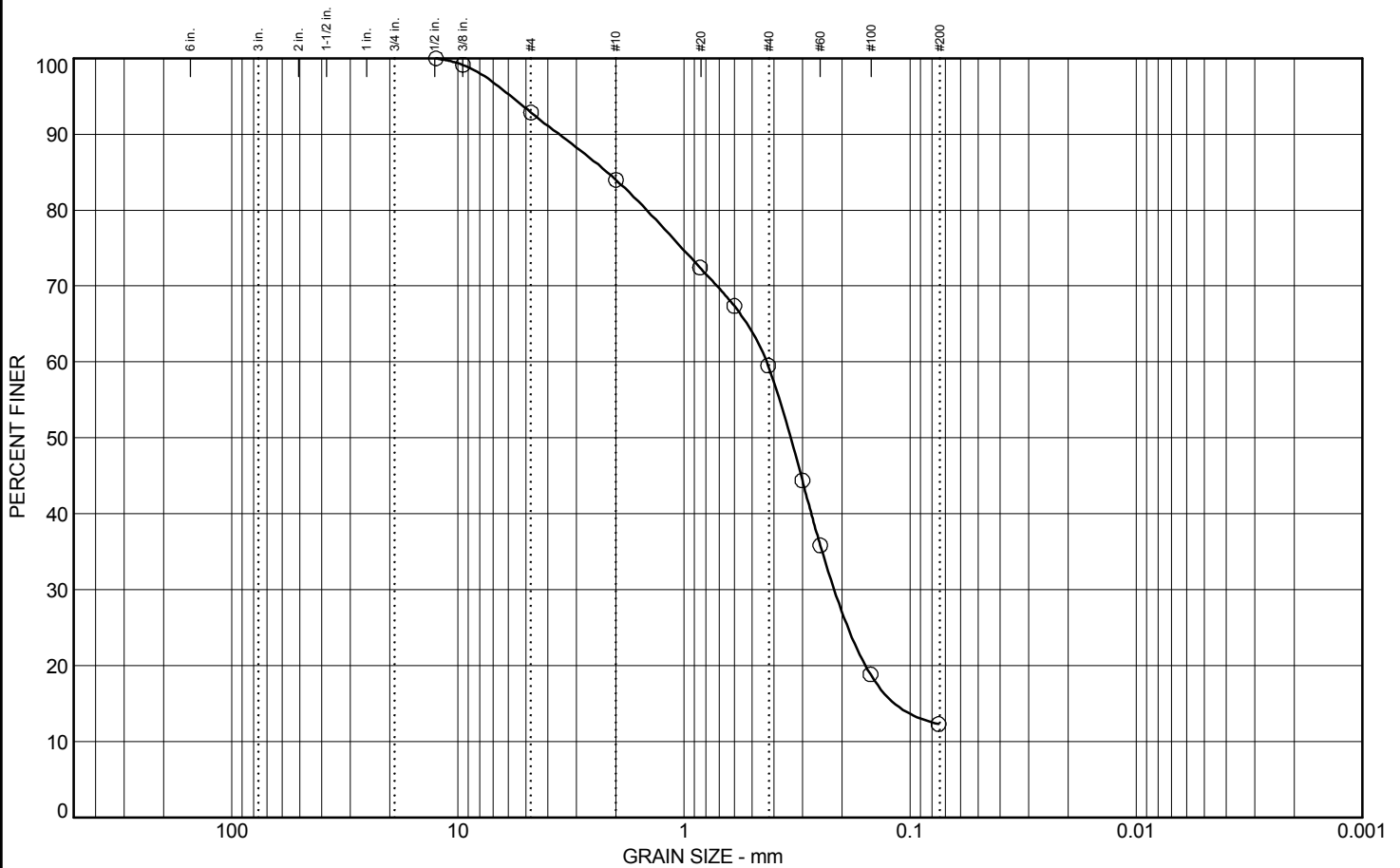
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	16.0	25.0	46.7	12.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	99.1		
4.75	92.8		
2	84.0		
0.85	72.4		
0.6	67.4		
0.425	59.5		
0.3	44.4		
0.25	35.8		
0.15	18.8		
0.075	12.3		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 19.0%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 2.208$
 $D_{30} = 0.21$
 $C_u = 7.36$
 $D_{60} = 0.434$
 $D_{15} = 0.1$
 $C_c = 1.72$
 $D_{50} = 0.341$
 $D_{10} =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 16

Location: -

Source of Sample: B-024

Date:

Depth / Elev: 43.5' / 699.93'



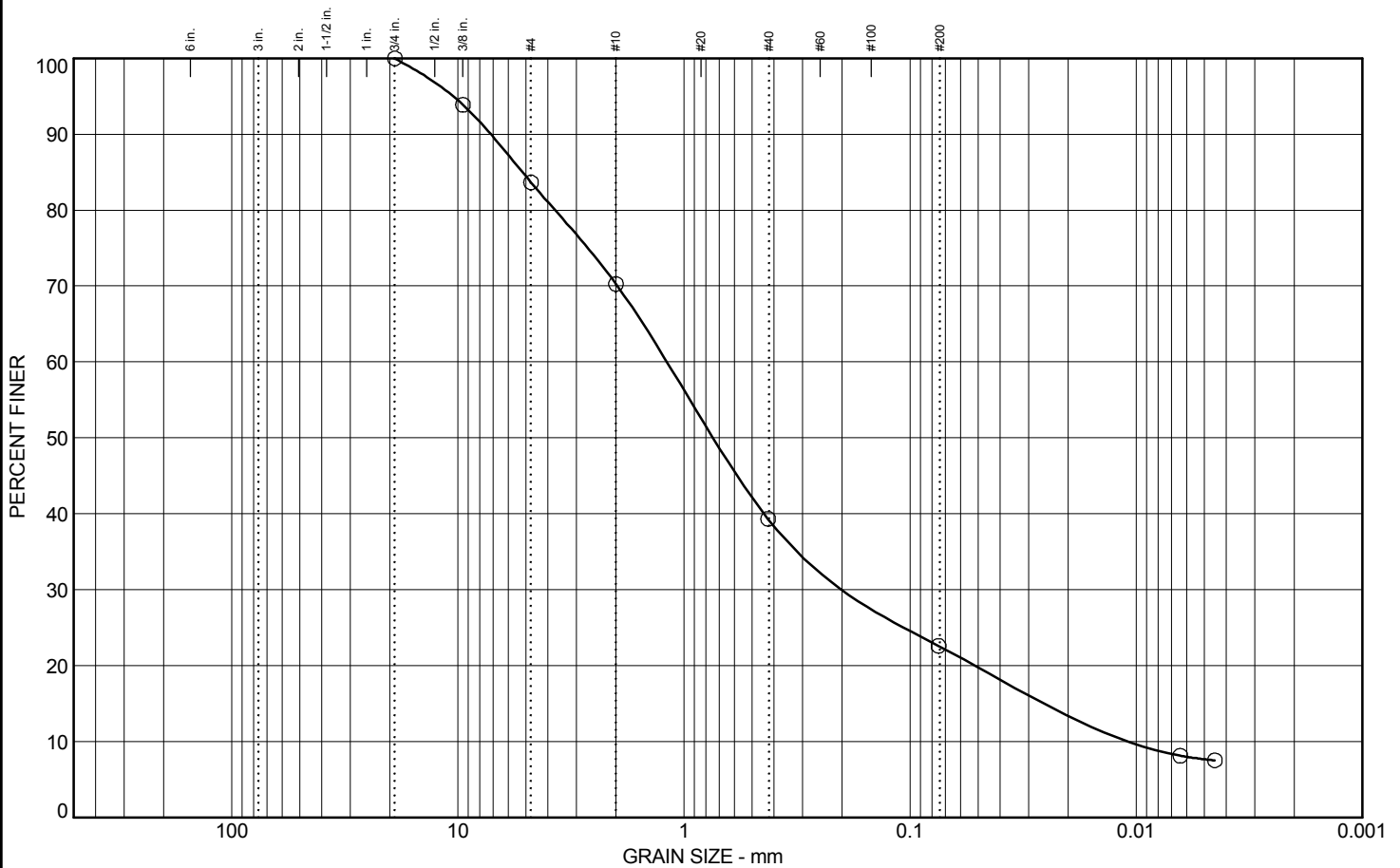
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	29.7	31.1	16.6	14.9	7.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	93.9		
4.75	83.6		
2	70.3		
0.425	39.3		
0.075	22.6		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 9.9%

Atterberg Limits

LL= 20

PL= 15

PI= 5

Coefficients

$D_{85} = 5.206$

$D_{60} = 1.196$

$D_{50} = 0.725$

$D_{30} = 0.162$

$D_{15} = 0.021$

$D_{10} = 0.009$

$C_u = 135.36$

$C_c = 2.48$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 18

Source of Sample: B-024

Location: -

Date:

Depth / Elev: 53.5' / 689.93'



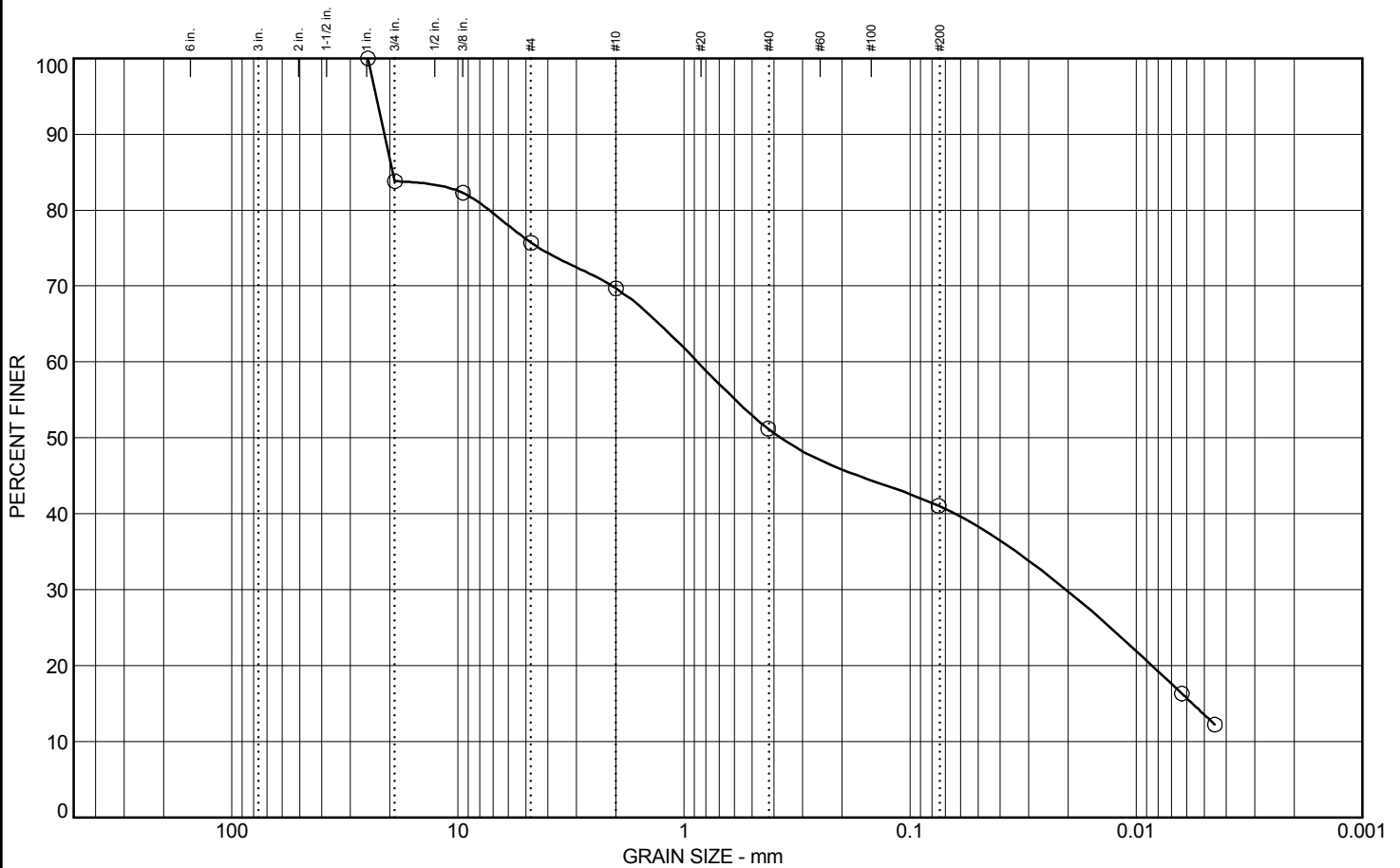
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	16.2	14.1	18.6	10.1	27.6	13.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	83.8		
9.5	82.3		
4.75	75.7		
2	69.7		
0.425	51.2		
0.075	41.0		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine to coarse gravel

General Characteristics

Moisture Content = 13.2%

Atterberg Limits

LL= 27

PL= 19

PI= 8

Coefficients

$D_{85} = 19.388$

$D_{60} = 0.888$

$D_{50} = 0.346$

$D_{30} = 0.025$

$D_{15} = 0.006$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 1

Sample No.: 19

Source of Sample: B-024

Location: -

Date:

Depth / Elev: 58.5' / 684.93'



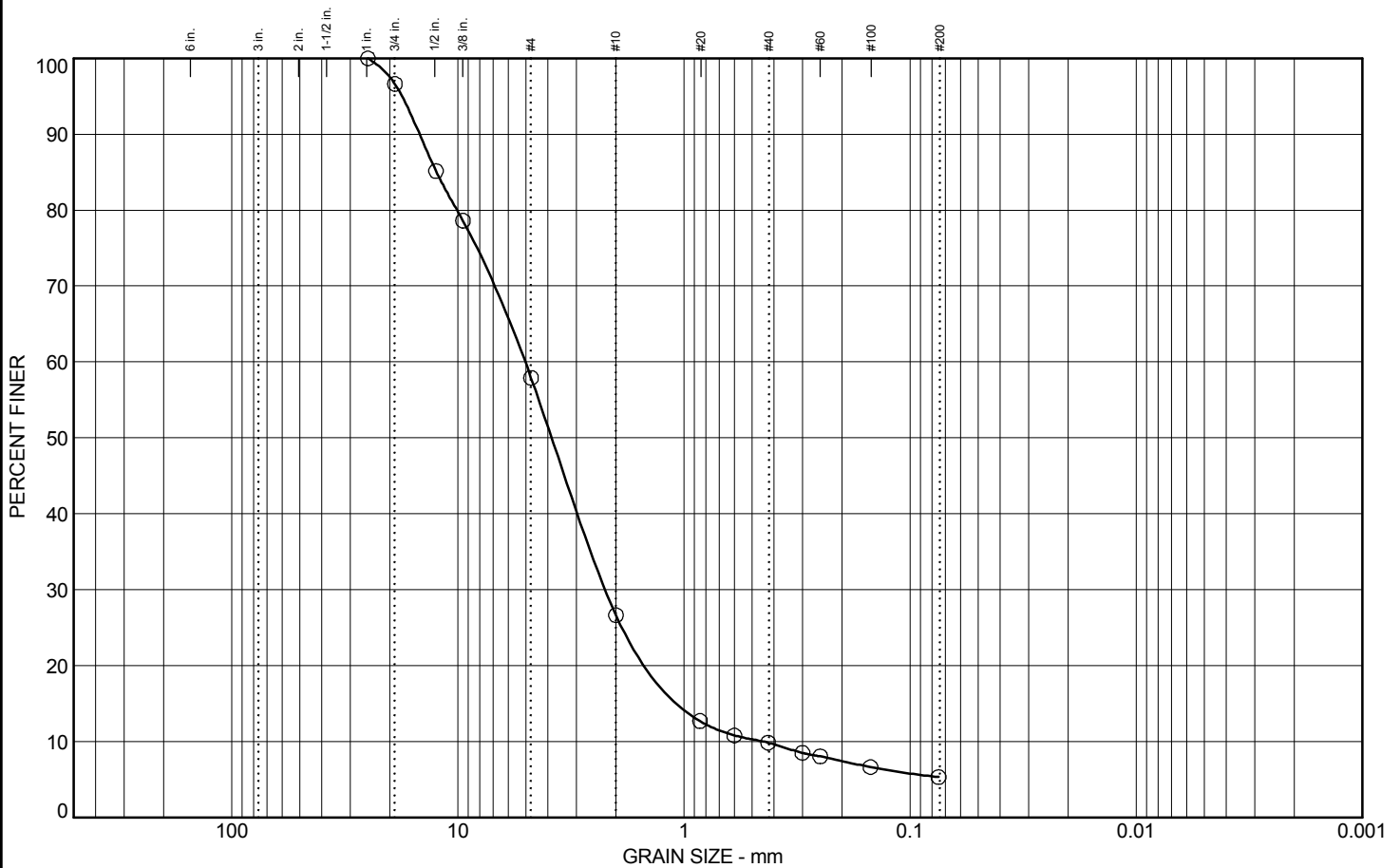
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	3.4	70.0	16.8	4.5	5.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	96.6		
12.5	85.1		
9.5	78.6		
4.75	57.9		
2	26.6		
0.85	12.7		
0.6	10.8		
0.425	9.8		
0.3	8.5		
0.25	8.0		
0.15	6.6		
0.075	5.3		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 9.3%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 12.424$ $D_{60} = 5.096$ $D_{50} = 3.818$
 $D_{30} = 2.196$ $D_{15} = 0.98$ $D_{10} = 0.453$
 $C_u = 11.24$ $C_c = 2.09$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 20

Location: -

Source of Sample: B-024

Date:

Depth / Elev: 63.5' / 679.93'



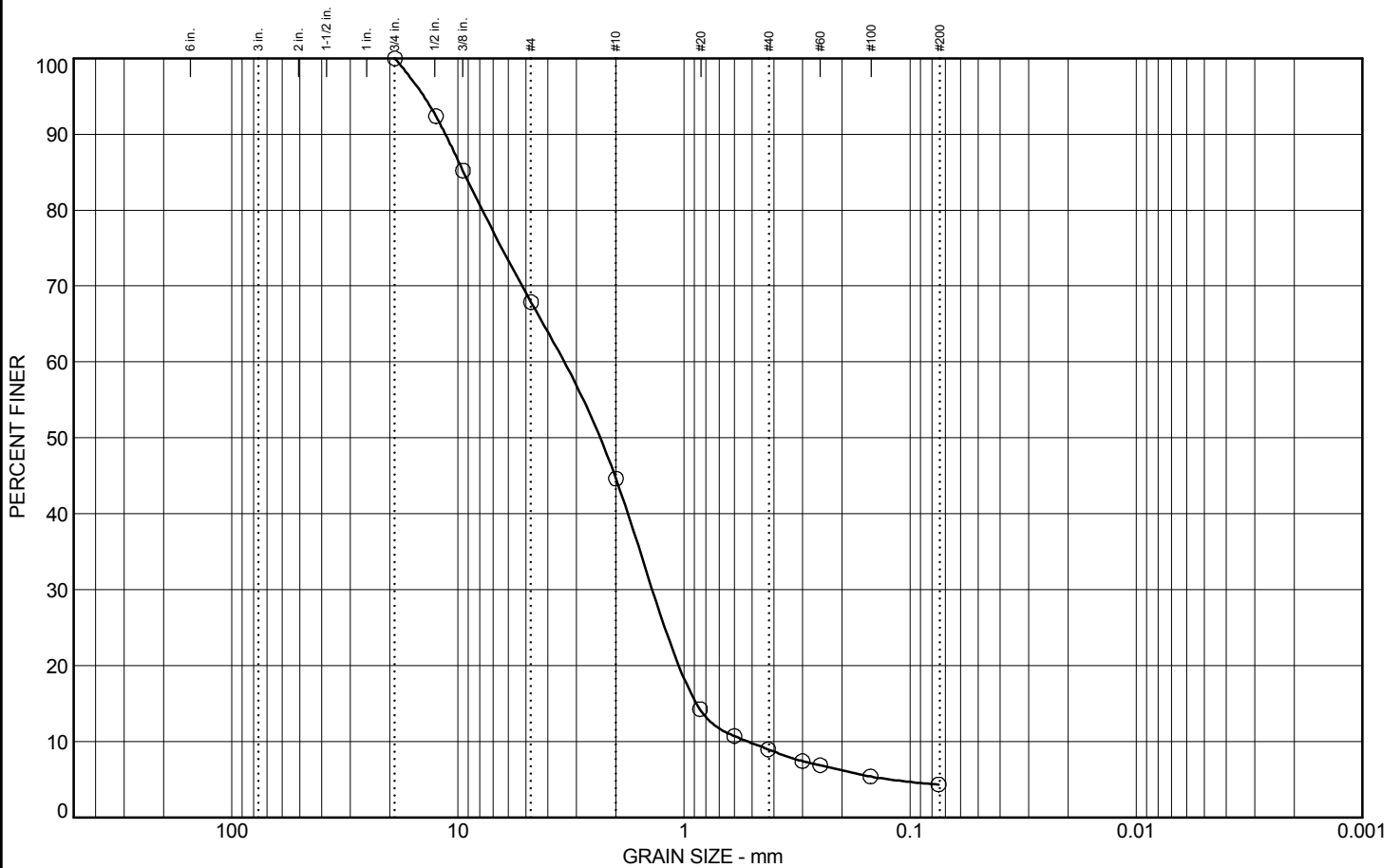
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	55.4	35.7	4.6	4.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	92.4		
9.5	85.2		
4.75	67.9		
2	44.6		
0.85	14.3		
0.6	10.7		
0.425	8.9		
0.3	7.4		
0.25	6.9		
0.15	5.4		
0.075	4.3		

* (no specification provided)

Soil Description

medium to coarse sand, fine gravel

General Characteristics

Moisture Content = 7.3%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 9.421$
 $D_{30} = 1.325$
 $C_u = 6.78$
 $D_{60} = 3.544$
 $D_{15} = 0.868$
 $C_c = 0.95$
 $D_{50} = 2.443$
 $D_{10} = 0.523$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 23

Location: -

Source of Sample: B-024

Date:

Depth / Elev: 78.5' / 664.93'



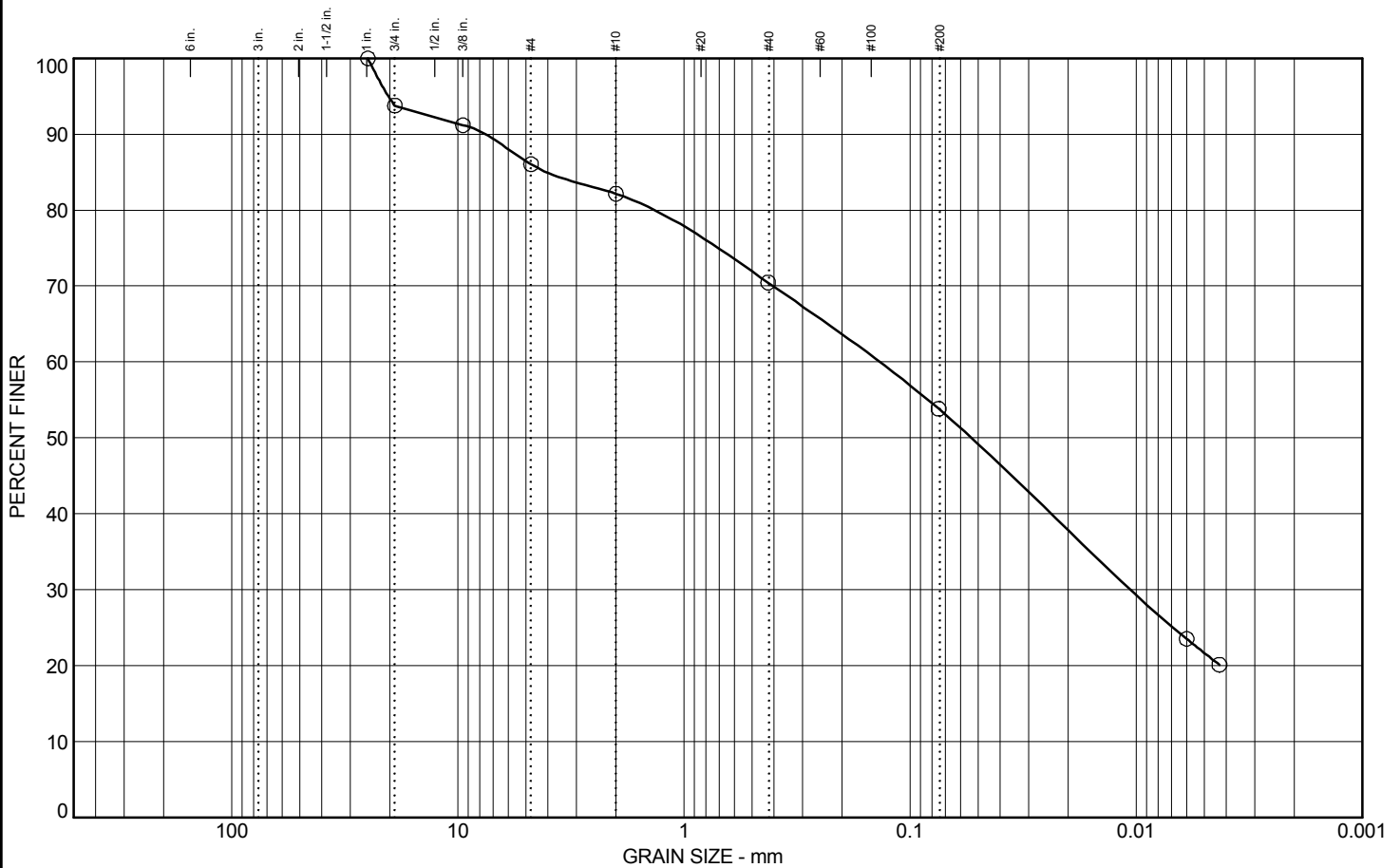
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	6.2	11.6	11.8	16.5	32.2	21.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	93.8		
9.5	91.2		
4.75	86.0		
2	82.2		
0.425	70.5		
0.075	53.8		

* (no specification provided)

Soil Description

low plasticity silt, fine to medium sand

General Characteristics

Moisture Content = 9.0%

Atterberg Limits

LL = 20

PL = 18

PI = 2

Coefficients

$D_{85} = 3.767$

$D_{60} = 0.143$

$D_{50} = 0.055$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 4

Location: -

Source of Sample: B-025

Date:

Depth / Elev: 8.5' / 731.88'



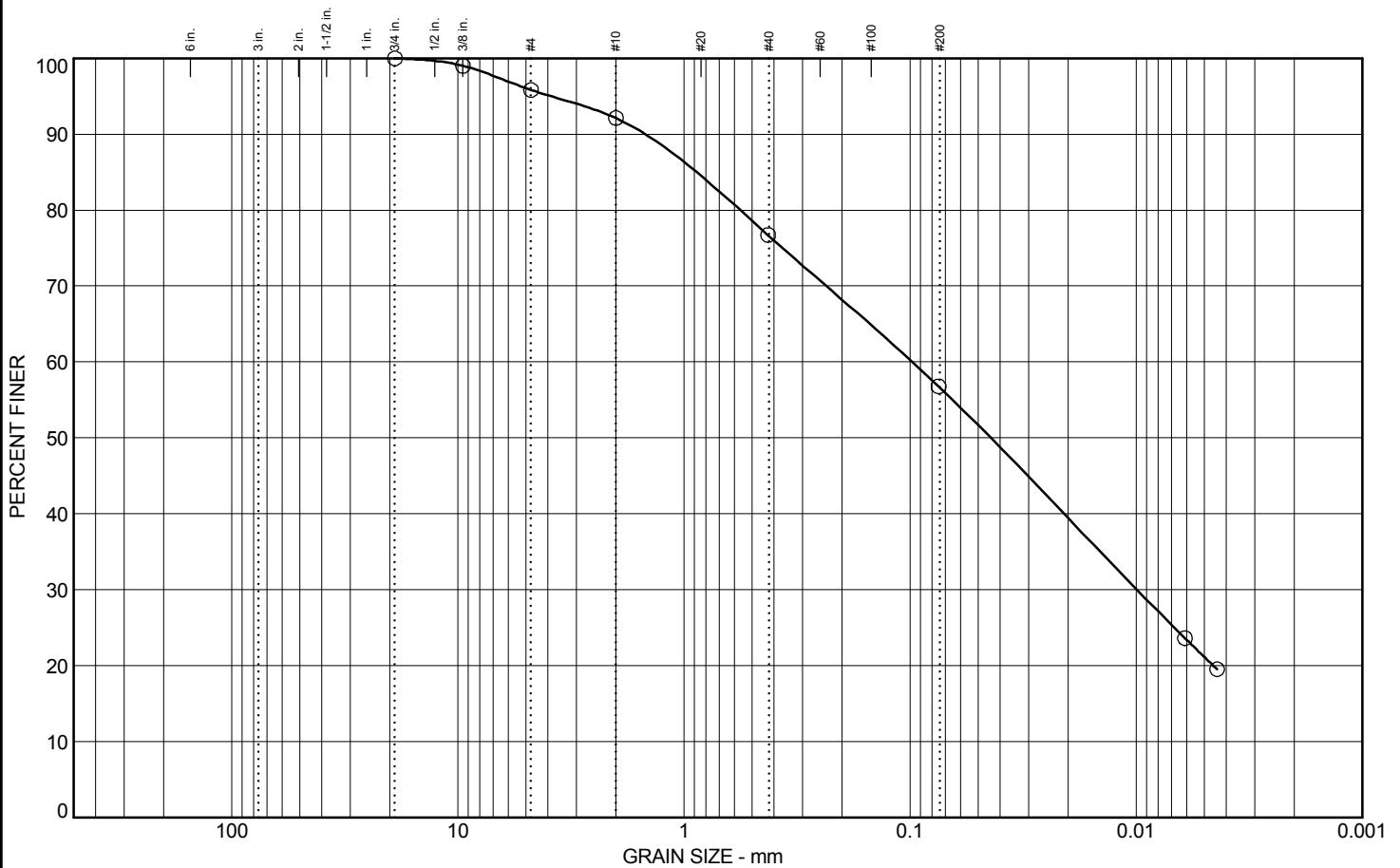
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	7.9	15.5	19.8	35.7	21.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.0		
4.75	95.8		
2	92.1		
0.425	76.7		
0.075	56.8		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.0%

Atterberg Limits

LL = 22

PL = 14

PI = 8

Coefficients

$D_{85} = 0.977$

$D_{60} = 0.099$

$D_{50} = 0.045$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 5

Source of Sample: B-025

Location: -

Date:

Depth / Elev: 10' / 730.38'



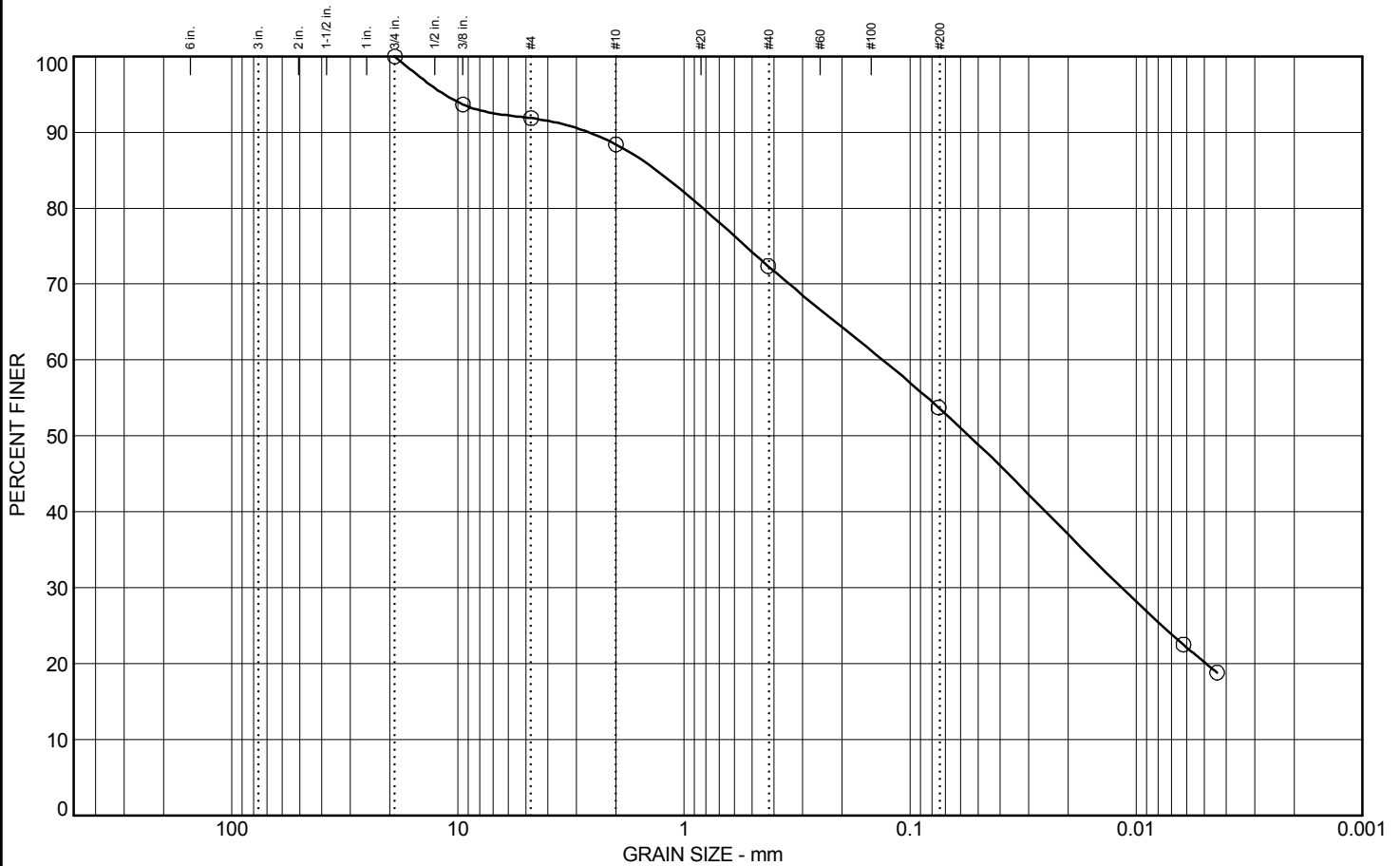
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	11.6	16.1	18.5	33.6	20.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	93.7		
4.75	91.9		
2	88.4		
0.425	72.4		
0.075	53.7		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.6%

Atterberg Limits

LL = 27

PL = 16

PI = 11

Coefficients

$D_{85} = 1.44$

$D_{60} = 0.134$

$D_{50} = 0.056$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 4

Sample No.: 6

Source of Sample: B-025

Location: -

Date:

Depth / Elev: 11.5' / 728.88'



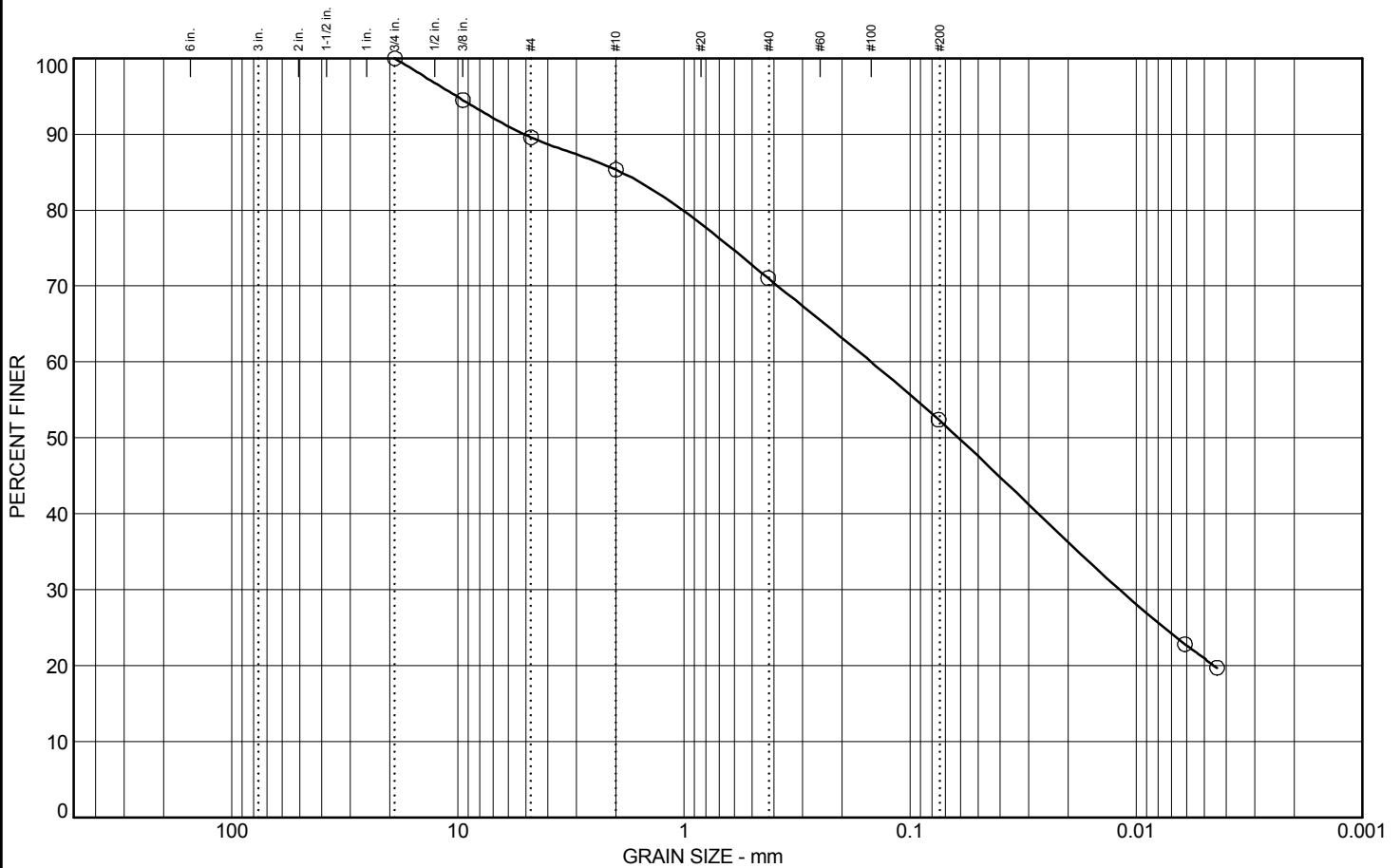
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	14.7	14.4	18.5	31.5	20.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.5		
4.75	89.6		
2	85.3		
0.425	71.0		
0.075	52.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.1%

Atterberg Limits

LL= 21

PL= 14

PI= 7

Coefficients

$D_{85} = 1.931$

$D_{60} = 0.152$

$D_{50} = 0.061$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 8

Source of Sample: B-025

Location: -

Date:

Depth / Elev: 16' / 724.38'



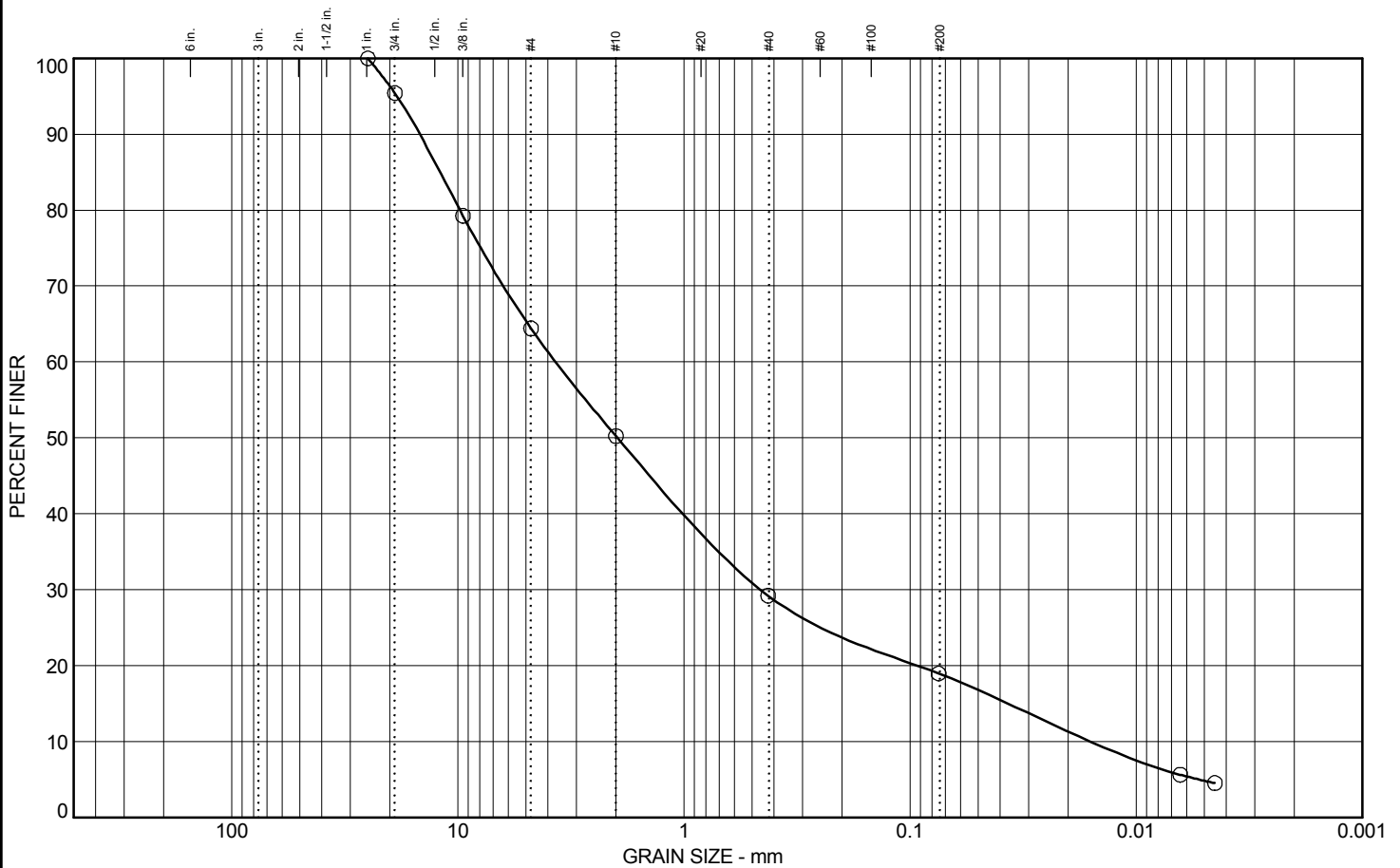
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	4.6	45.2	21.1	10.2	14.1	4.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	95.4		
9.5	79.3		
4.75	64.4		
2	50.2		
0.425	29.2		
0.075	18.9		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 8.0%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 12.153$

$D_{60} = 3.63$

$D_{50} = 1.968$

$D_{30} = 0.451$

$D_{15} = 0.036$

$D_{10} = 0.014$

$C_u = 251.88$

$C_c = 3.88$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 14

Source of Sample: B-025

Location: -

Date:

Depth / Elev: 33.5' / 706.88'



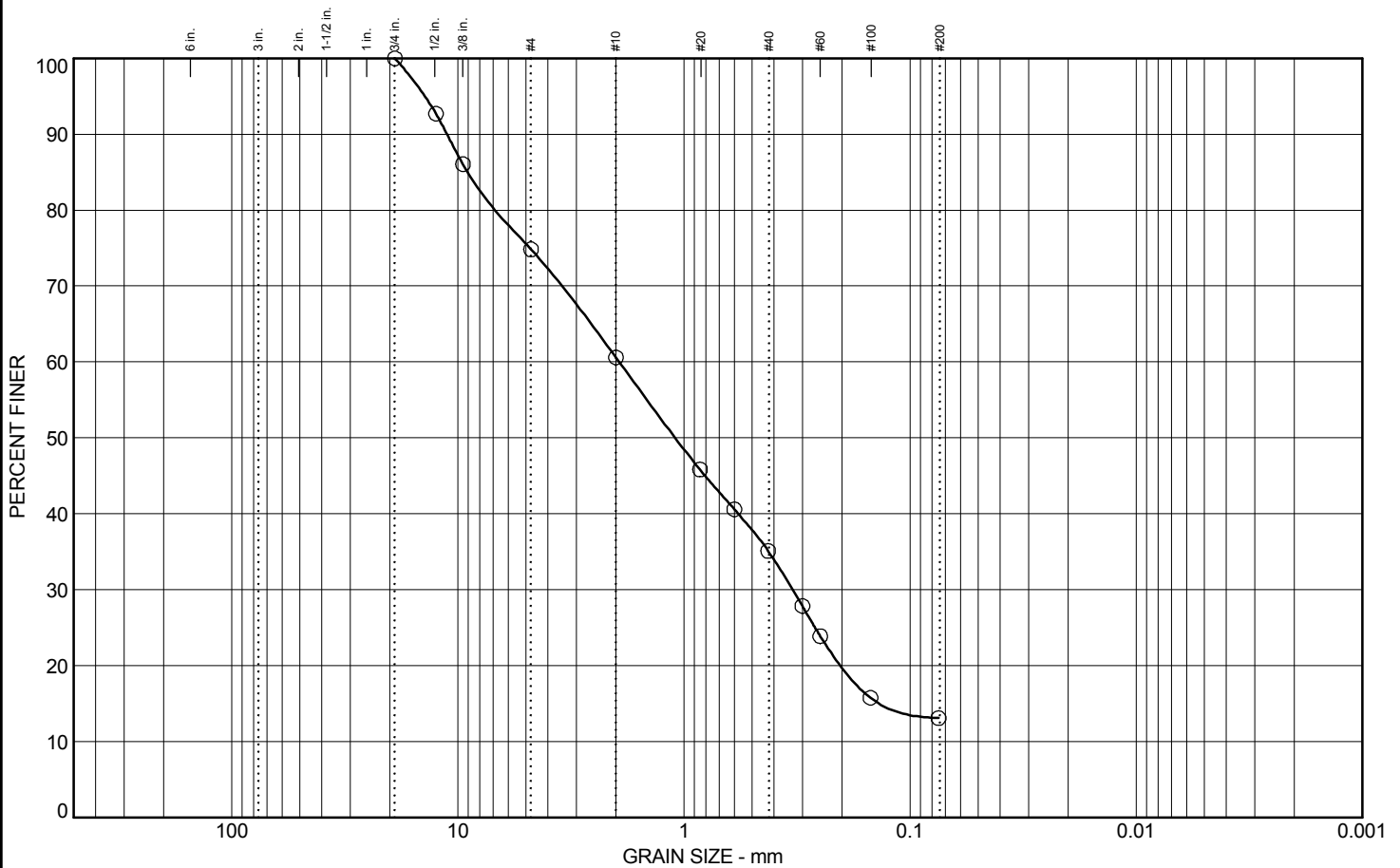
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	39.4	25.7	21.8	13.1	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	92.7		
9.5	86.1		
4.75	74.8		
2	60.6		
0.85	45.8		
0.6	40.6		
0.425	35.1		
0.3	27.8		
0.25	23.9		
0.15	15.7		
0.075	13.1		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 4.6%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 8.899$

$D_{60} = 1.934$

$D_{50} = 1.083$

$D_{30} = 0.333$

$D_{15} = 0.124$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 17

Source of Sample: B-025

Location: -

Date:

Depth / Elev: 48.5' / 691.88'



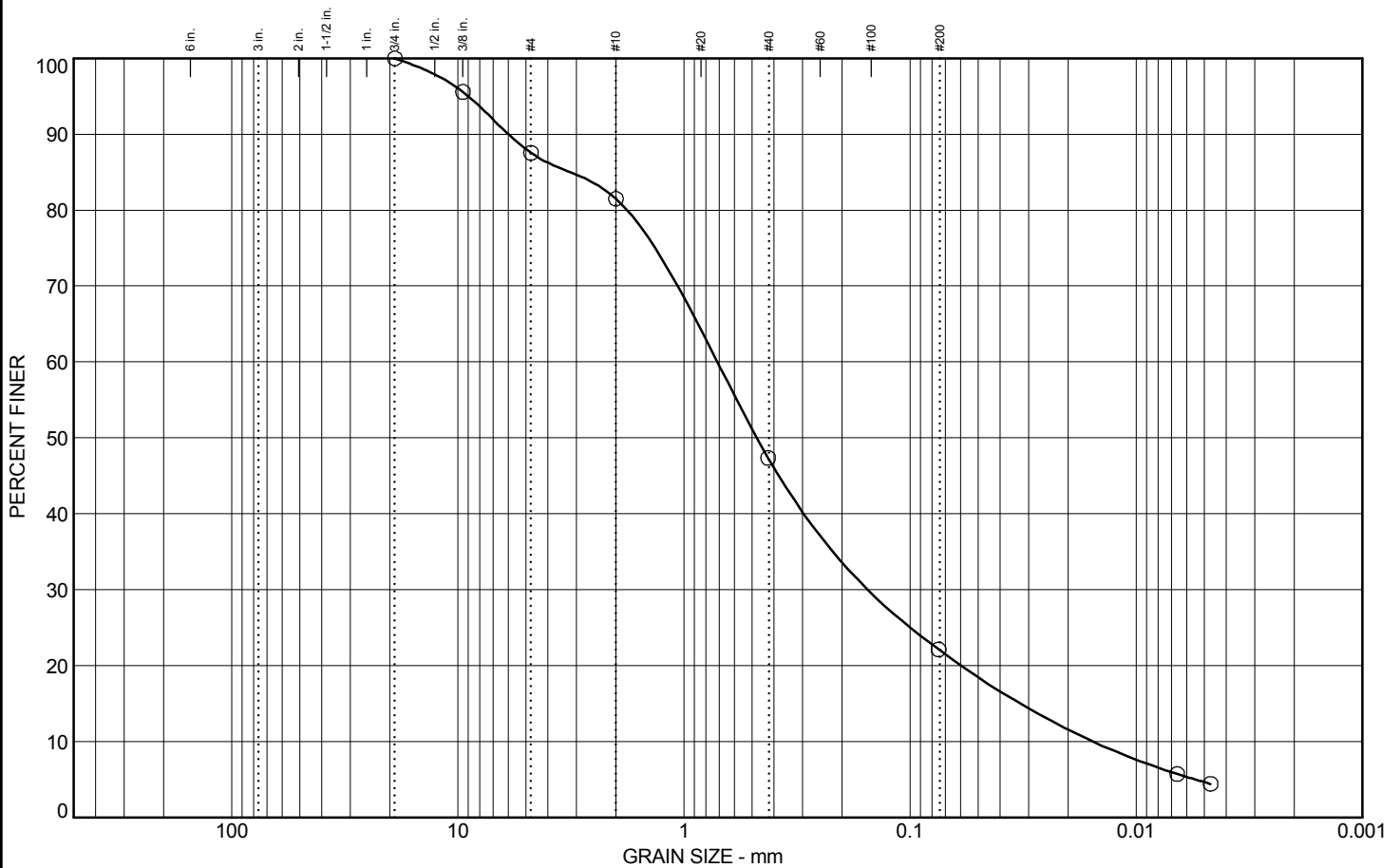
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	18.5	34.3	25.1	17.5	4.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.6		
4.75	87.5		
2	81.5		
0.425	47.3		
0.075	22.1		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 15.6%

Atterberg Limits

LL = 27

PL = 21

PI = 6

Coefficients

$D_{85} = 3.304$

$D_{60} = 0.755$

$D_{50} = 0.479$

$D_{30} = 0.129$

$D_{15} = 0.026$

$D_{10} = 0.012$

$C_u = 60.48$

$C_c = 1.77$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 2

Location: -

Source of Sample: B-027

Date:

Depth / Elev: 3' / 732.9'



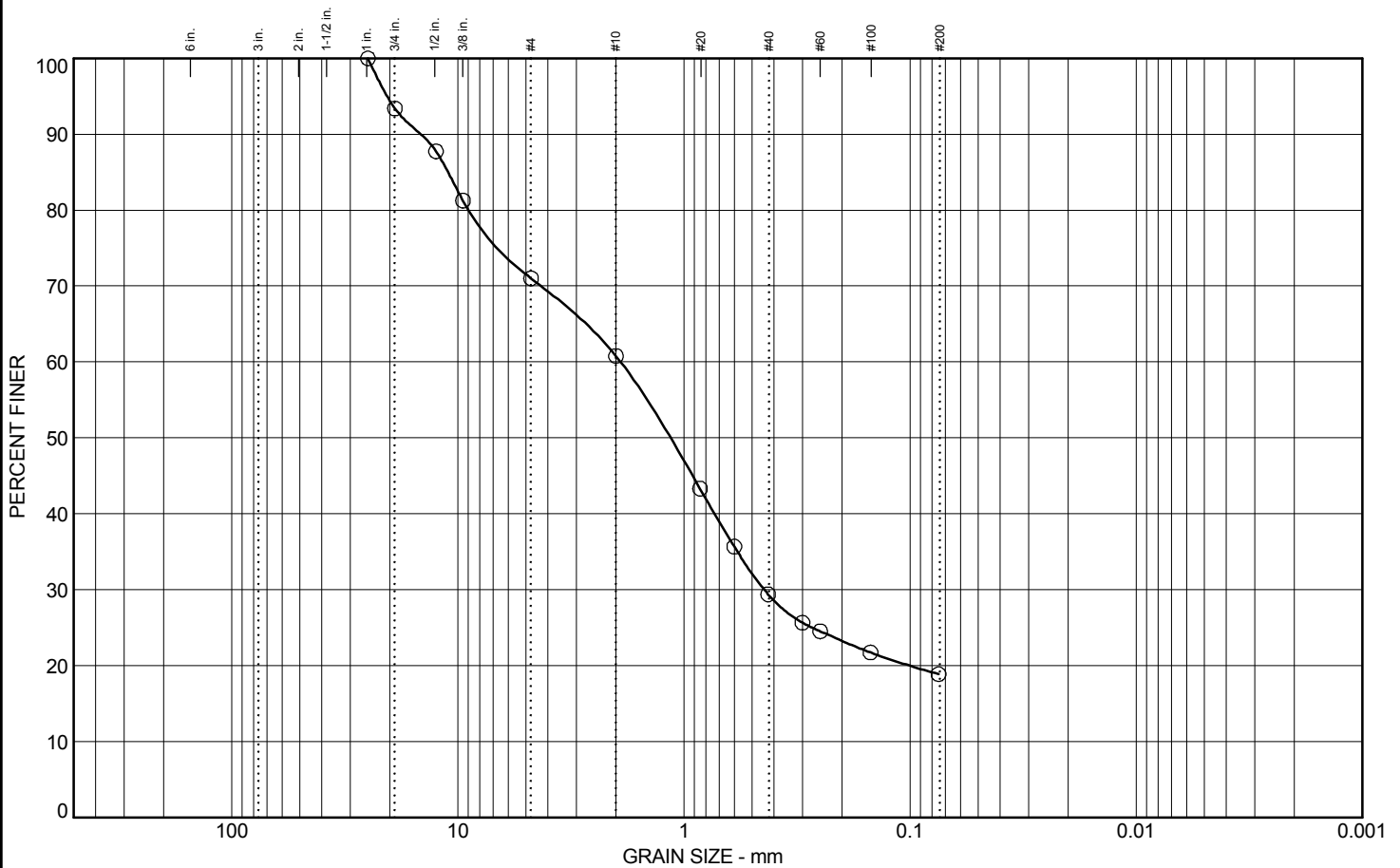
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	6.6	32.6	31.5	10.4	18.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	93.4		
12.5	87.8		
9.5	81.3		
4.75	71.0		
2	60.8		
0.85	43.3		
0.6	35.7		
0.425	29.4		
0.3	25.6		
0.25	24.5		
0.15	21.7		
0.075	18.9		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 9.1%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 11.126$
 $D_{30} = 0.44$
 $C_u =$
 $D_{60} = 1.926$
 $D_{15} =$
 $C_c =$
 $D_{50} = 1.18$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 3

Location: -

Source of Sample: B-027

Date:

Depth / Elev: 4.5' / 731.4'



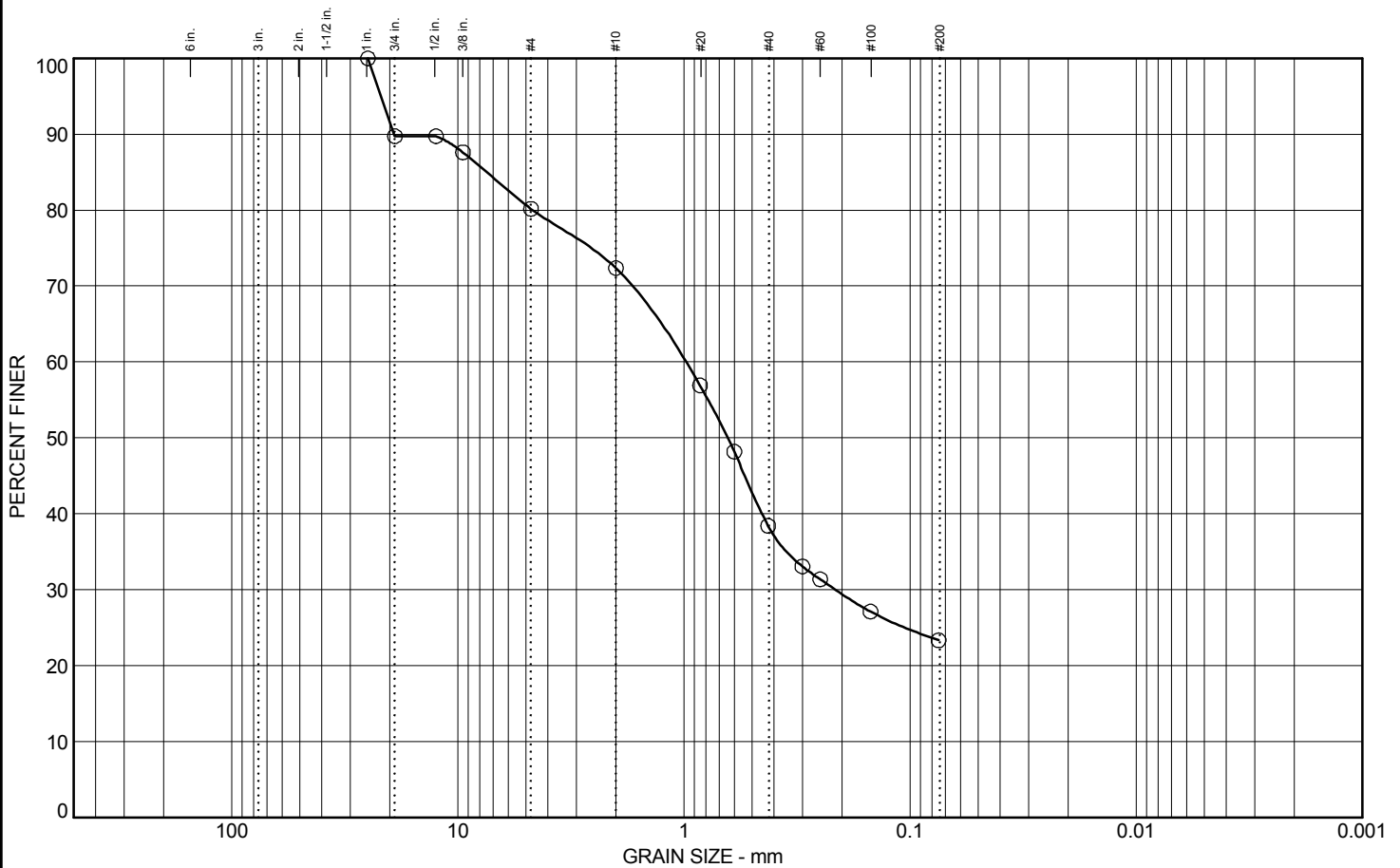
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	10.3	17.4	34.2	14.9	23.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	89.7		
12.5	89.7		
9.5	87.6		
4.75	80.2		
2	72.4		
0.85	56.9		
0.6	48.2		
0.425	38.4		
0.3	33.0		
0.25	31.3		
0.15	27.1		
0.075	23.3		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine to coarse gravel

General Characteristics

Moisture Content = 14.2%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 7.448$
 $D_{30} = 0.213$
 $C_u =$
 $D_{60} = 1.009$
 $D_{15} =$
 $C_c =$
 $D_{50} = 0.646$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 5

Location: -

Source of Sample: B-027

Date:

Depth / Elev: 7.5' / 728.4'



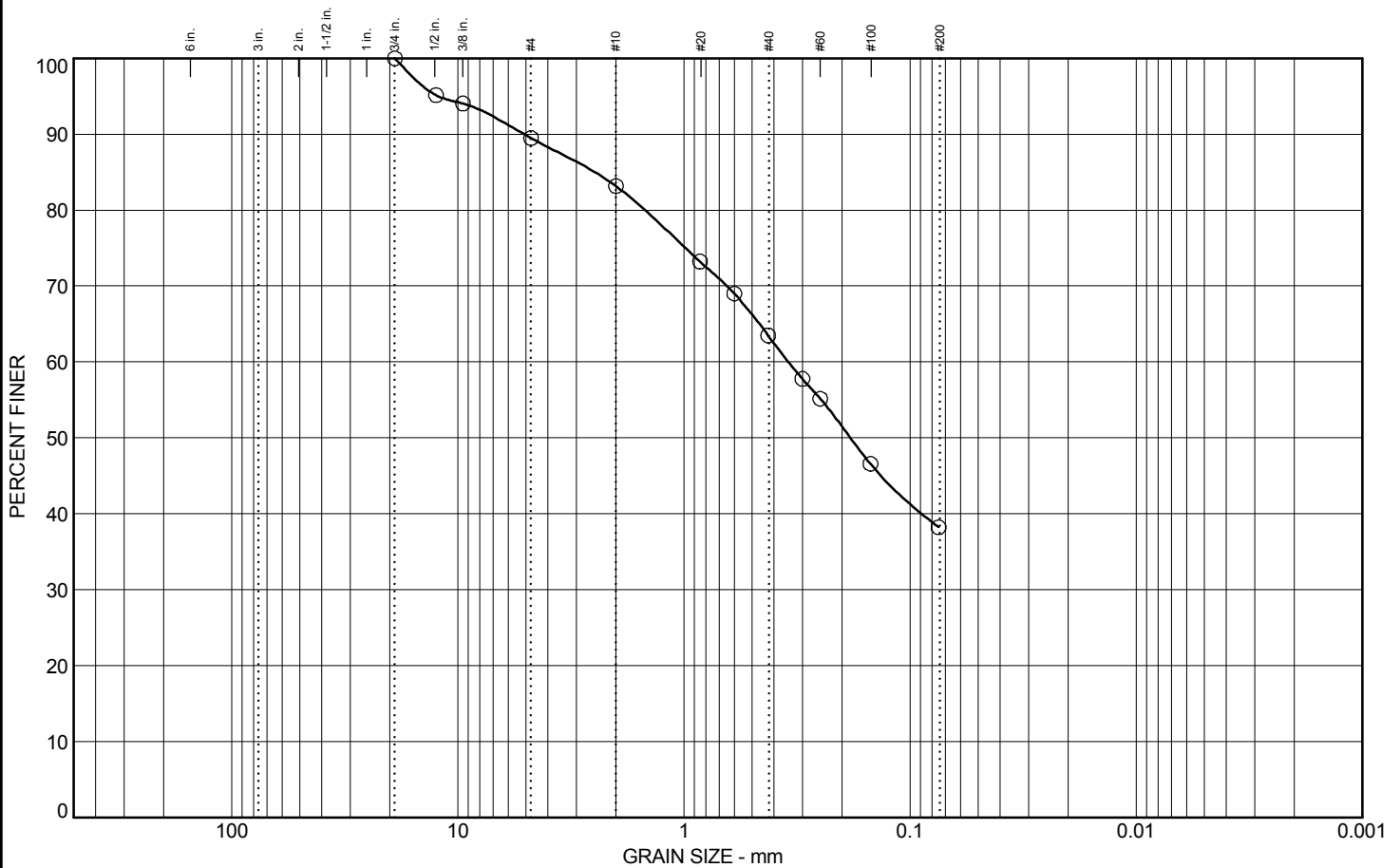
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	16.8	19.9	25.1	38.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	95.1		
9.5	94.0		
4.75	89.5		
2	83.2		
0.85	73.2		
0.6	69.0		
0.425	63.5		
0.3	57.8		
0.25	55.1		
0.15	46.6		
0.075	38.2		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 8.5%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 2.571$

$D_{60} = 0.344$

$D_{50} = 0.184$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 1

Sample No.: 6

Source of Sample: B-027

Location: -

Date:

Depth / Elev: 10' / 725.9'



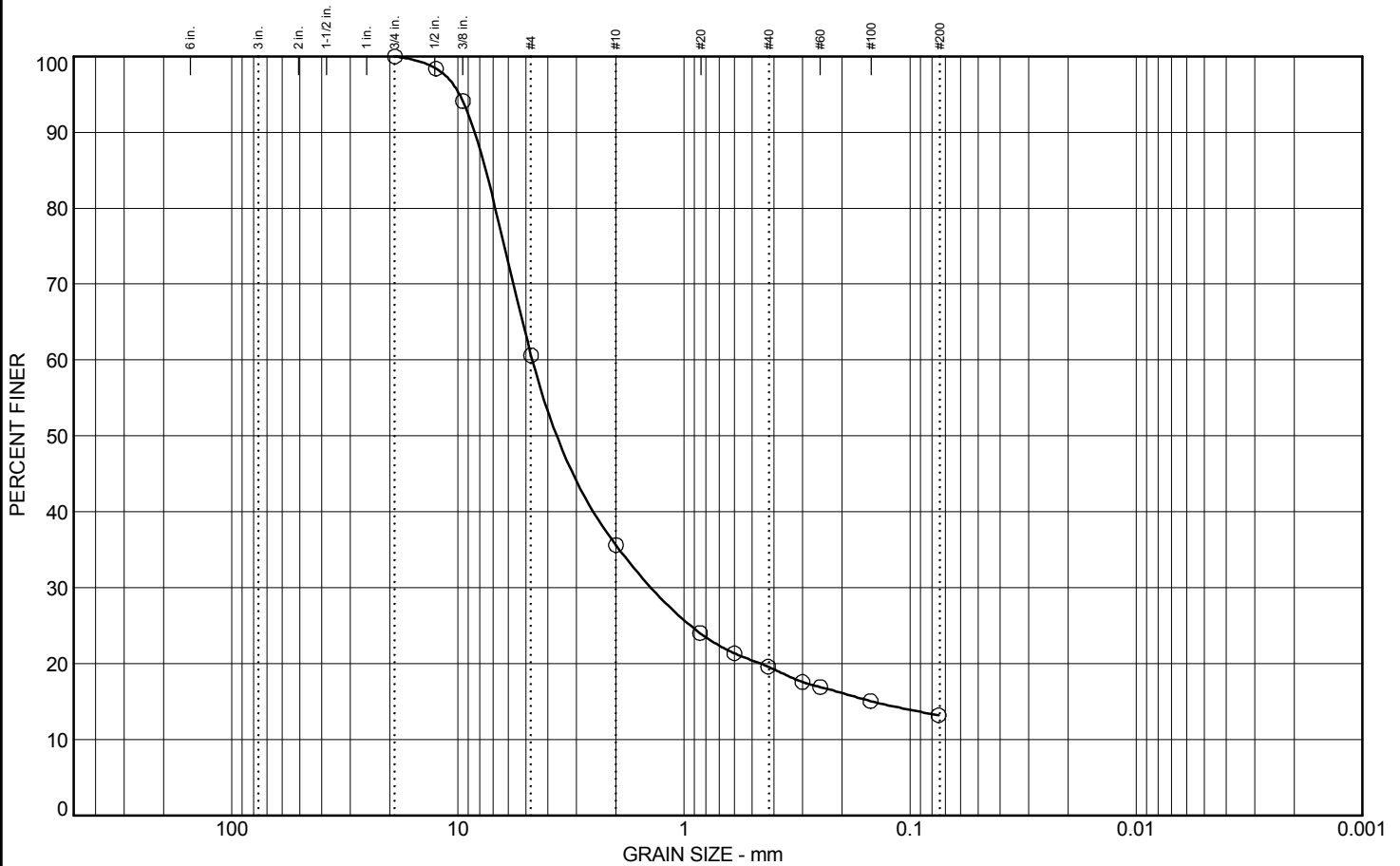
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	64.4	16.1	6.3	13.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	98.4		
9.5	94.1		
4.75	60.6		
2	35.6		
0.85	24.0		
0.6	21.3		
0.425	19.6		
0.3	17.6		
0.25	16.9		
0.15	15.1		
0.075	13.2		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 6.5%

Atterberg Limits

LL =

PL =

PI = Non-plastic

Coefficients

$D_{85} = 7.868$

$D_{60} = 4.651$

$D_{50} = 3.291$

$D_{30} = 1.322$

$D_{15} = 0.147$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 1

Source of Sample: B-028

Location: -

Date:

Depth / Elev: 1.5' / 730.23'



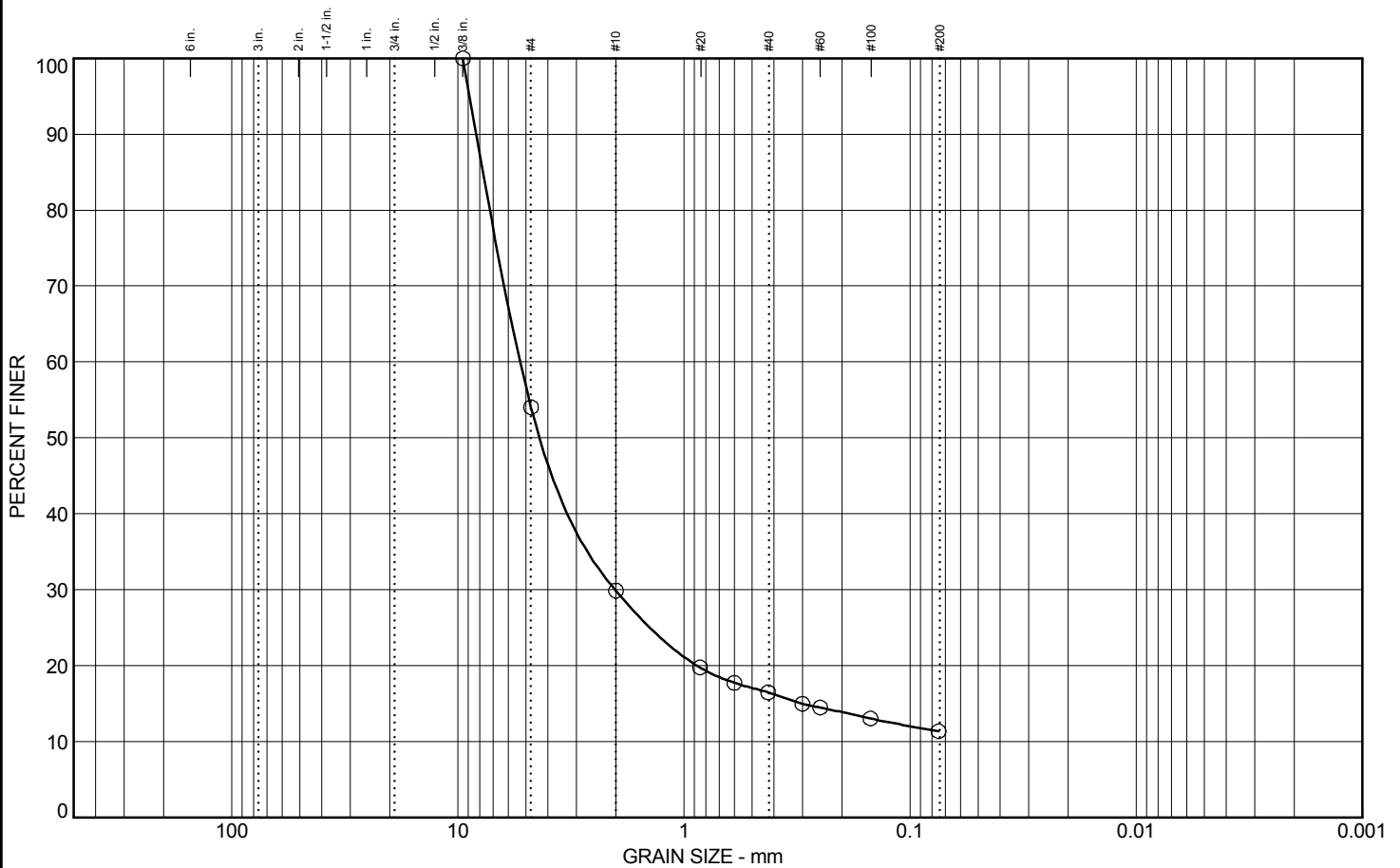
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	70.1	13.5	5.1	11.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	54.0		
2	29.9		
0.85	19.7		
0.6	17.7		
0.425	16.4		
0.3	15.0		
0.25	14.4		
0.15	13.0		
0.075	11.3		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 7.2%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 7.577$

$D_{60} = 5.198$

$D_{50} = 4.113$

$D_{30} = 2.011$

$D_{15} = 0.303$

$D_{10} =$

$C_u = 119.90$

$C_c = 17.94$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 2

Source of Sample: B-028

Location: -

Date:

Depth / Elev: 3.5' / 728.23'



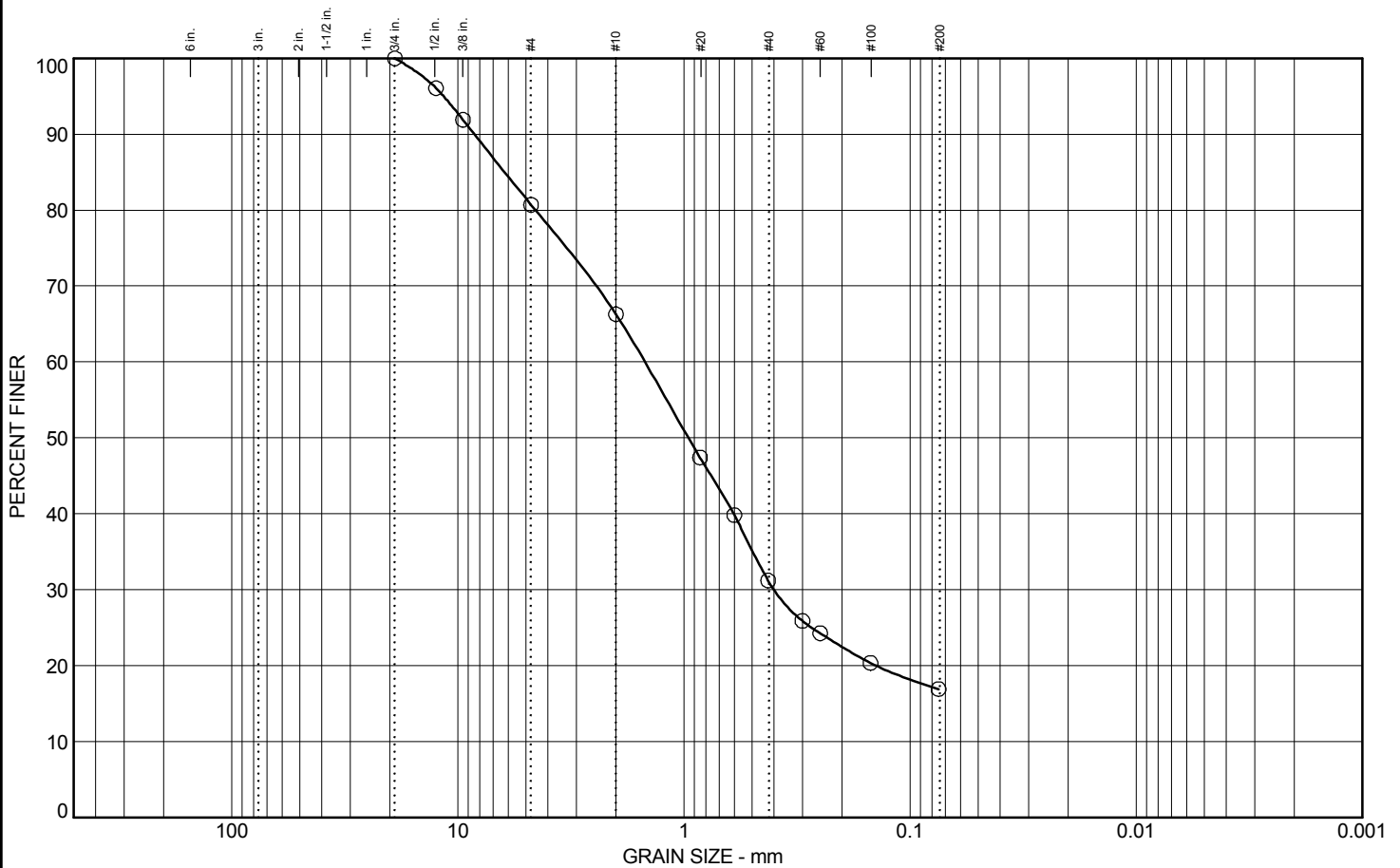
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	33.7	35.3	14.1	16.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	96.1		
9.5	91.9		
4.75	80.7		
2	66.3		
0.85	47.4		
0.6	39.8		
0.425	31.2		
0.3	25.9		
0.25	24.2		
0.15	20.3		
0.075	16.9		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 7.8%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 6.196$

$D_{60} = 1.505$

$D_{50} = 0.956$

$D_{30} = 0.393$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 3

Source of Sample: B-028

Location: -

Date:

Depth / Elev: 6' / 725.73'



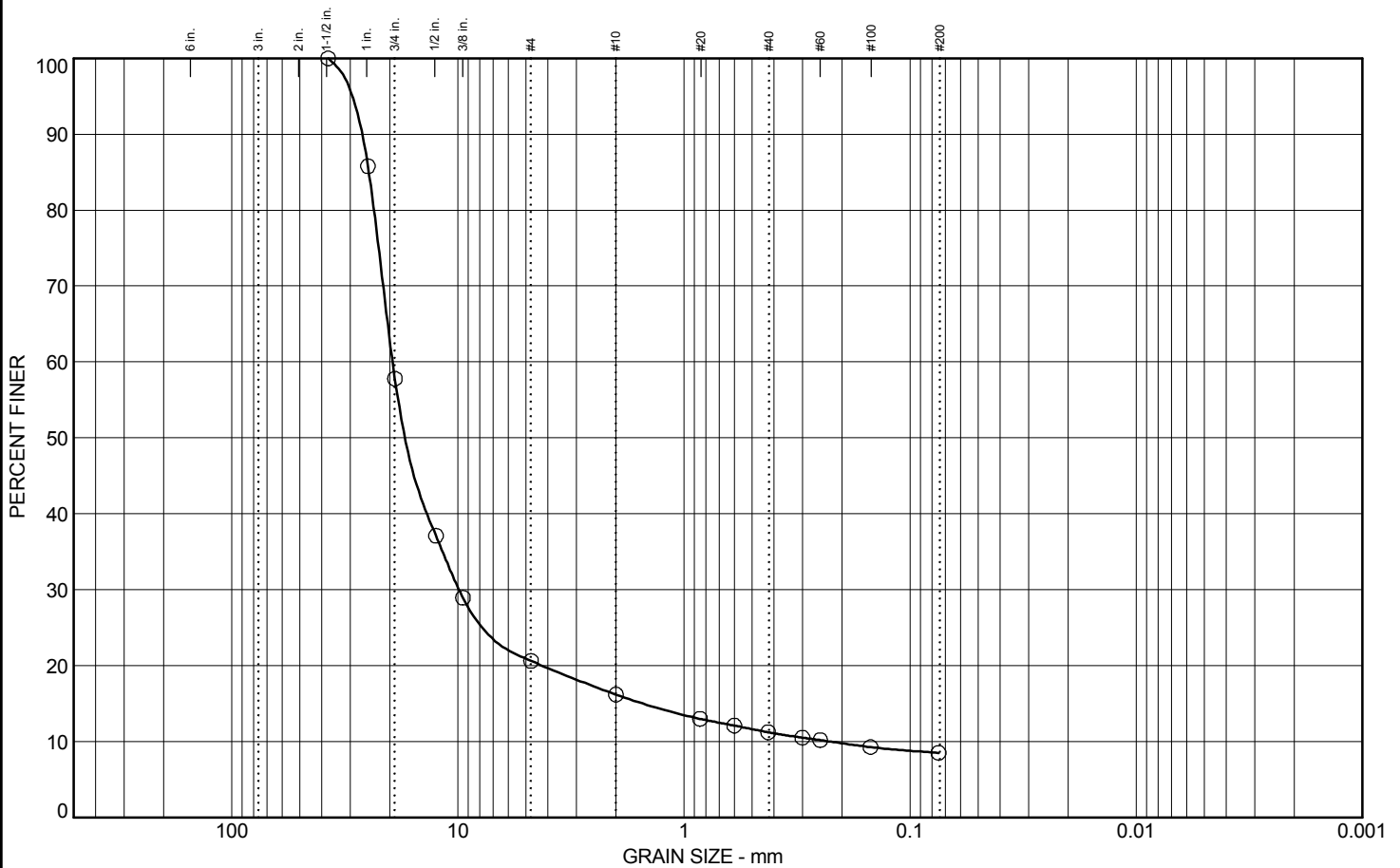
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	42.2	41.6	5.0	2.7	8.5	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
37.5	100.0		
25	85.8		
19	57.8		
12.5	37.1		
9.5	28.9		
4.75	20.6		
2	16.2		
0.85	13.0		
0.6	12.1		
0.425	11.2		
0.3	10.5		
0.25	10.2		
0.15	9.2		
0.075	8.5		

* (no specification provided)

Soil Description

fine to coarse gravel, non-plastic silt

General Characteristics

Moisture Content = 3.3%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 24.808$

$D_{60} = 19.416$

$D_{50} = 16.23$

$D_{30} = 9.852$

$D_{15} = 1.465$

$D_{10} = 0.229$

$C_u = 84.80$

$C_c = 21.83$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 4

Location: -

Source of Sample: B-028

Date:

Depth / Elev: 8.5' / 723.23'



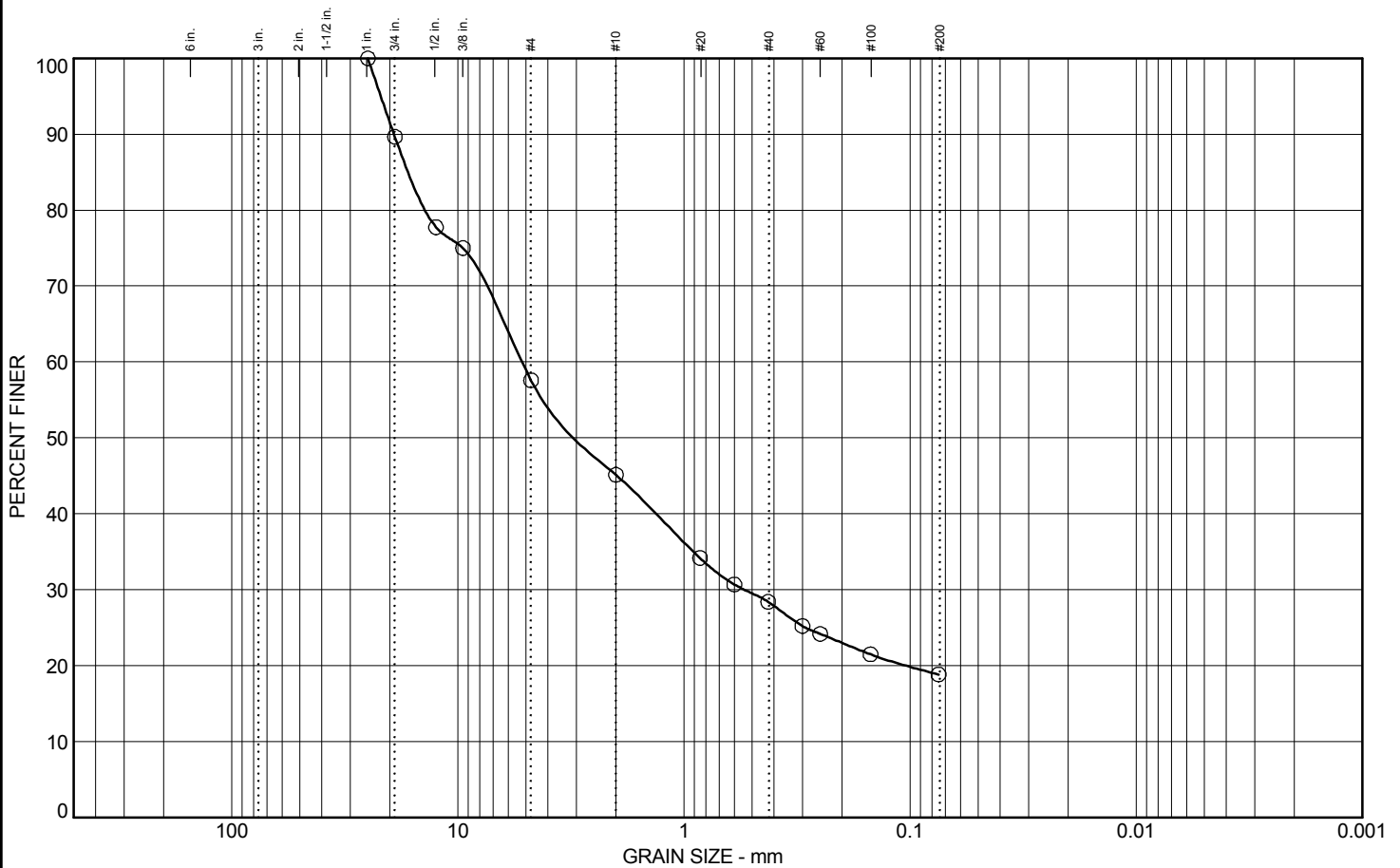
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	10.3	44.5	16.8	9.5	18.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	89.7		
12.5	77.7		
9.5	75.0		
4.75	57.6		
2	45.1		
0.85	34.2		
0.6	30.7		
0.425	28.4		
0.3	25.2		
0.25	24.2		
0.15	21.5		
0.075	18.8		

* (no specification provided)

Soil Description

fine gravel, non-plastic silt, medium to coarse sand

General Characteristics

Moisture Content = 12.6%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 16.129$
 $D_{30} = 0.542$
 $C_u =$
 $D_{60} = 5.231$
 $D_{15} =$
 $C_c =$
 $D_{50} = 2.807$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 3
Location: -

Source of Sample: B-029

Date:
Depth / Elev: 4.5' / 737.79'



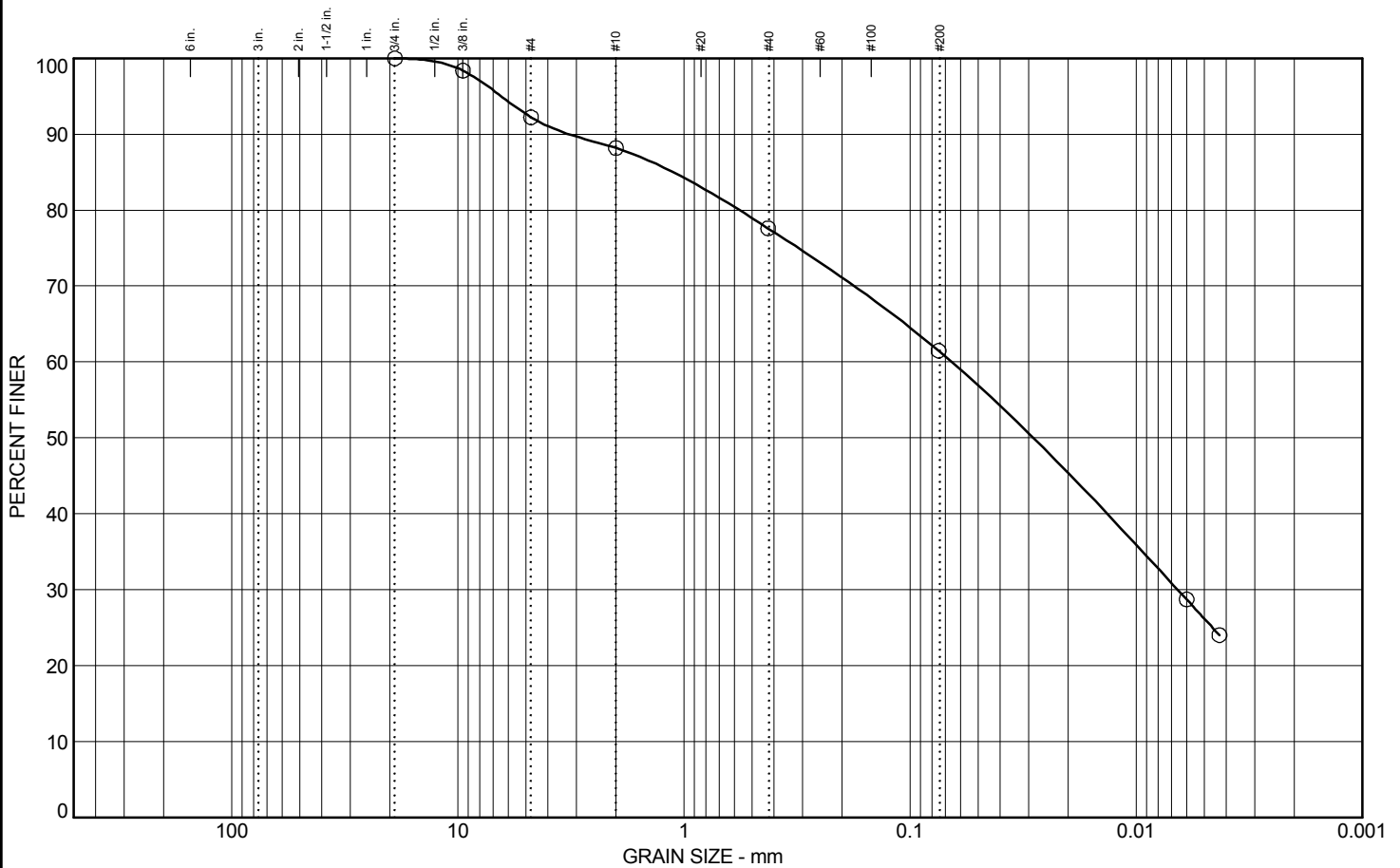
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	11.8	10.7	16.0	35.3	26.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.4		
4.75	92.2		
2	88.2		
0.425	77.6		
0.075	61.5		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.5%

Atterberg Limits

LL = 24

PL = 14

PI = 10

Coefficients

$D_{85} = 1.256$

$D_{60} = 0.067$

$D_{50} = 0.031$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 4

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 6' / 736.29'



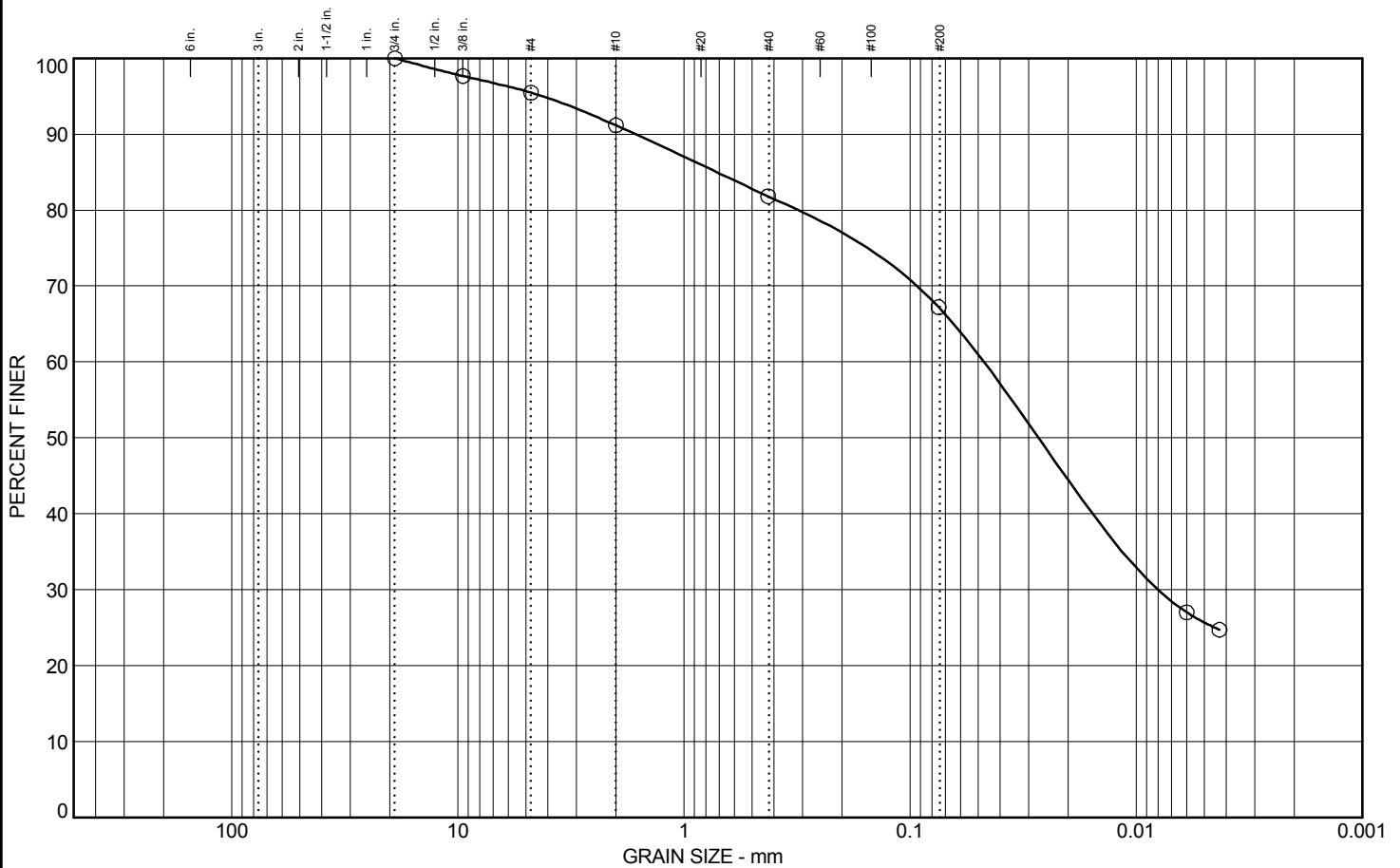
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.8	9.4	14.5	41.5	25.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	97.7		
4.75	95.5		
2	91.2		
0.425	81.8		
0.075	67.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.1%

Atterberg Limits

LL= 28

PL= 10

PI= 18

Coefficients

$D_{85} = 0.719$

$D_{60} = 0.048$

$D_{50} = 0.025$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6b

Remarks

Group Index = 10

Sample No.: 5

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 7.5' / 734.79'



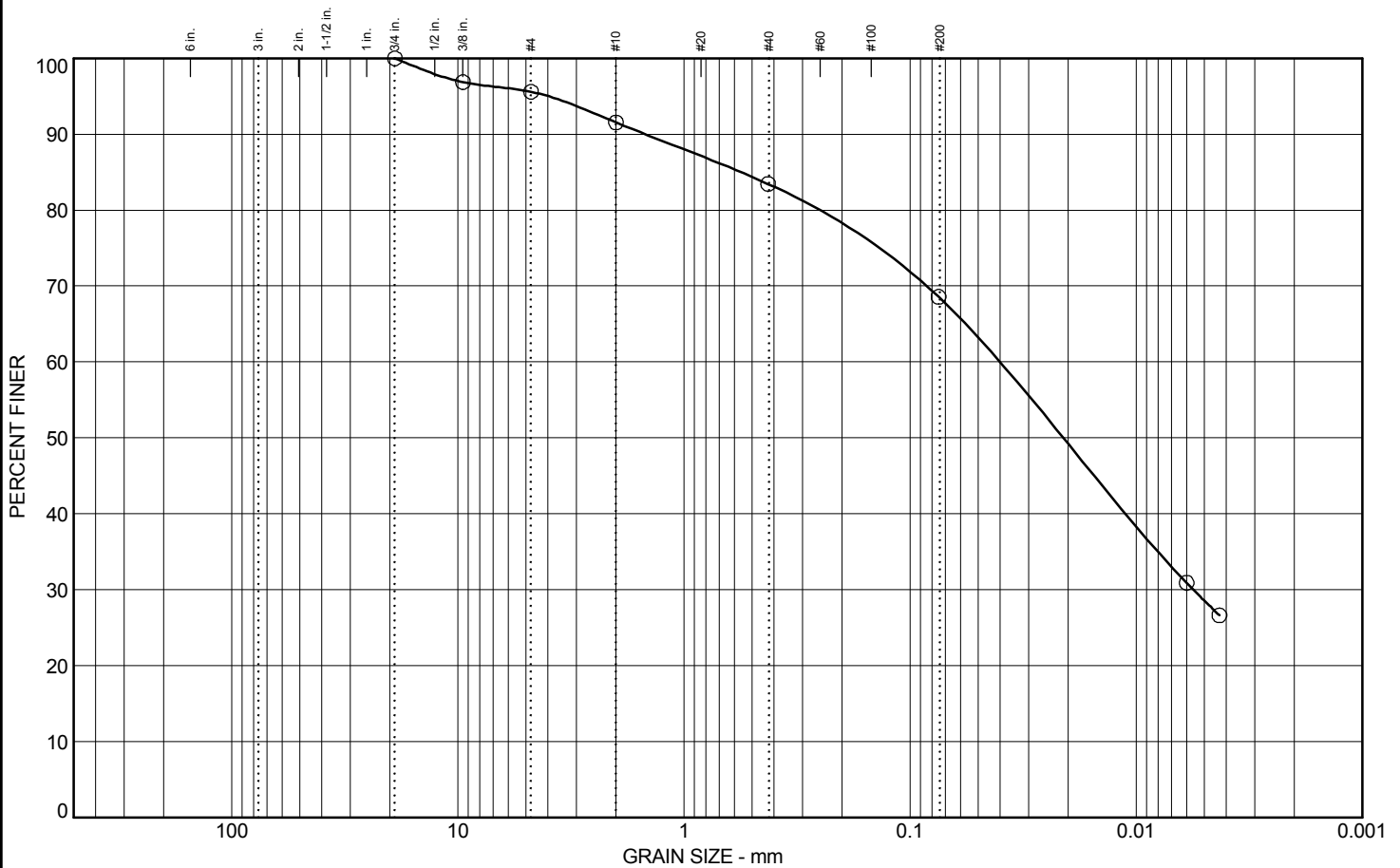
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.4	8.2	14.8	40.0	28.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.9		
4.75	95.6		
2	91.6		
0.425	83.4		
0.075	68.6		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.2%

Atterberg Limits

LL= 23

PL= 15

PI= 8

Coefficients

$D_{85} = 0.572$

$D_{60} = 0.042$

$D_{50} = 0.022$

$D_{30} = 0.006$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 7

Sample No.: 6

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 10' / 732.29'



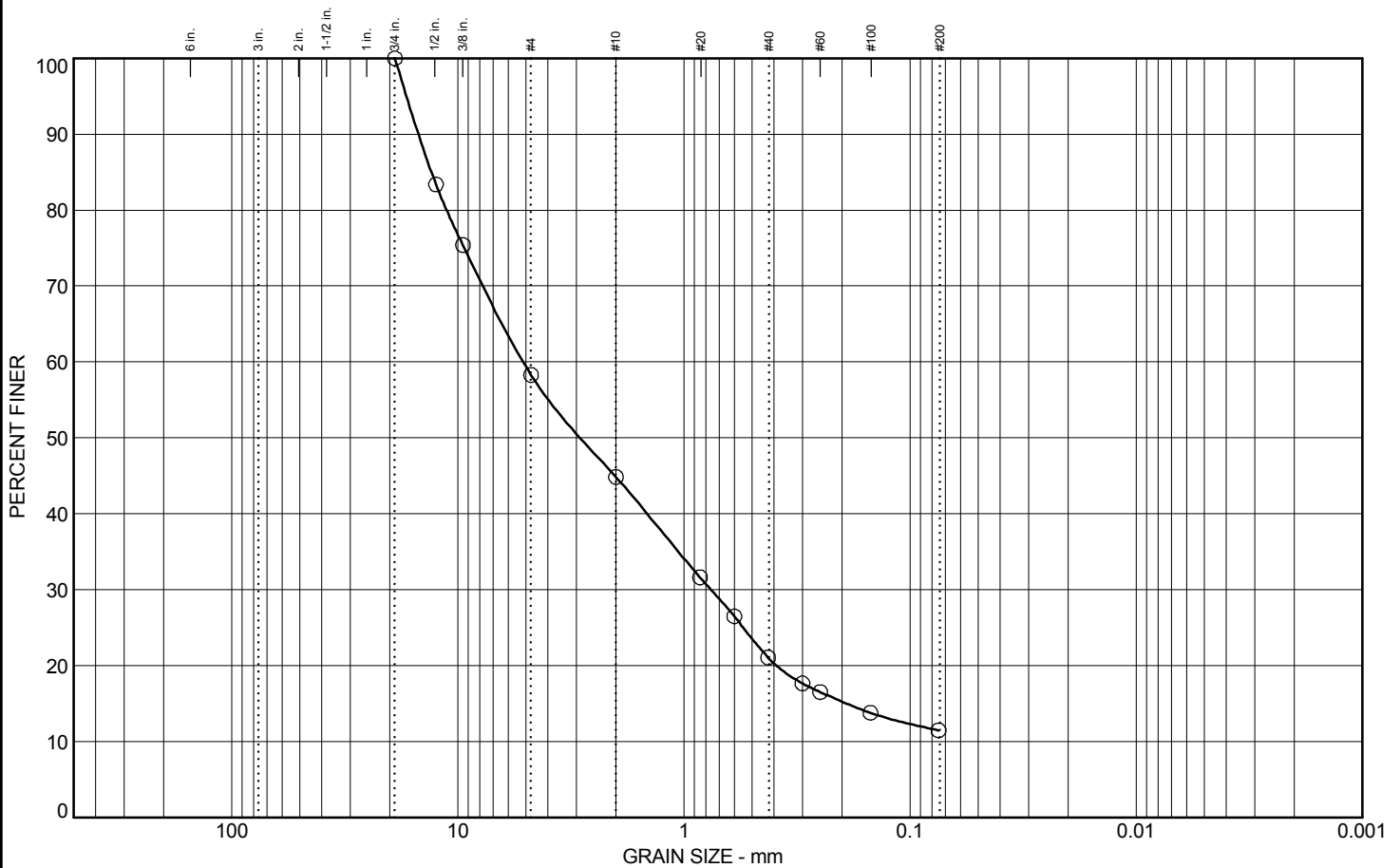
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	55.2	23.9	9.5	11.4	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	83.4		
9.5	75.4		
4.75	58.3		
2	44.8		
0.85	31.6		
0.6	26.5		
0.425	21.0		
0.3	17.6		
0.25	16.5		
0.15	13.8		
0.075	11.4		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 2.6%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 13.019$

$D_{60} = 5.092$

$D_{50} = 2.788$

$D_{30} = 0.762$

$D_{15} = 0.189$

$D_{10} =$

$C_u = 104.78$

$C_c = 2.34$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 8

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 15' / 727.29'



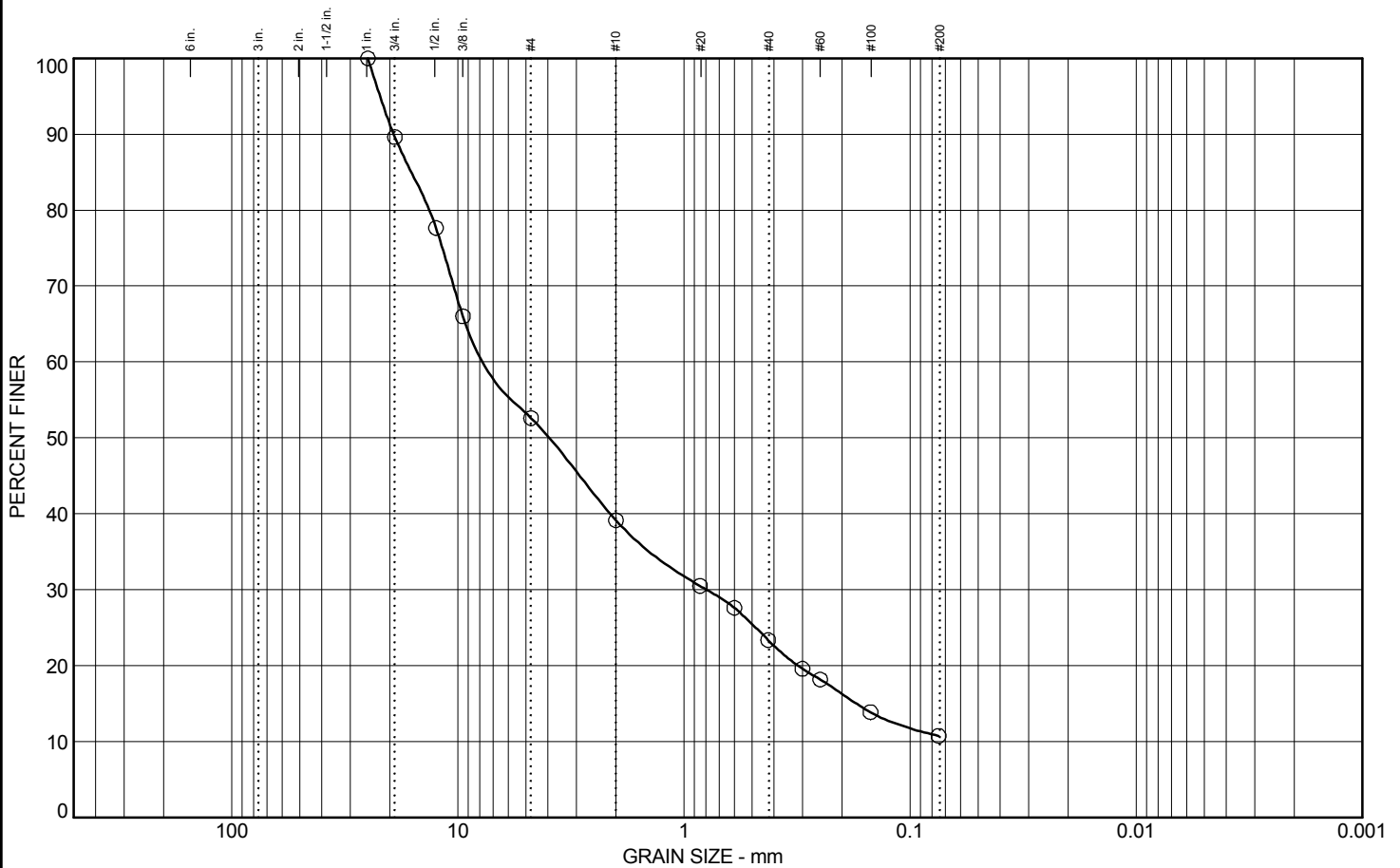
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	10.4	50.5	15.9	12.5	10.7	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	89.6		
12.5	77.6		
9.5	66.0		
4.75	52.6		
2	39.1		
0.85	30.5		
0.6	27.6		
0.425	23.3		
0.3	19.6		
0.25	18.1		
0.15	13.8		
0.075	10.7		

* (no specification provided)

Soil Description

fine gravel, non-plastic silt, medium to coarse sand

General Characteristics

Moisture Content = 1.9%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 16.164$ $D_{60} = 6.965$ $D_{50} = 4.021$
 $D_{30} = 0.802$ $D_{15} = 0.172$ $D_{10} =$
 $C_u = 109.28$ $C_c = 1.45$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 9

Location: -

Source of Sample: B-029

Date:

Depth / Elev: 16.5' / 725.79'



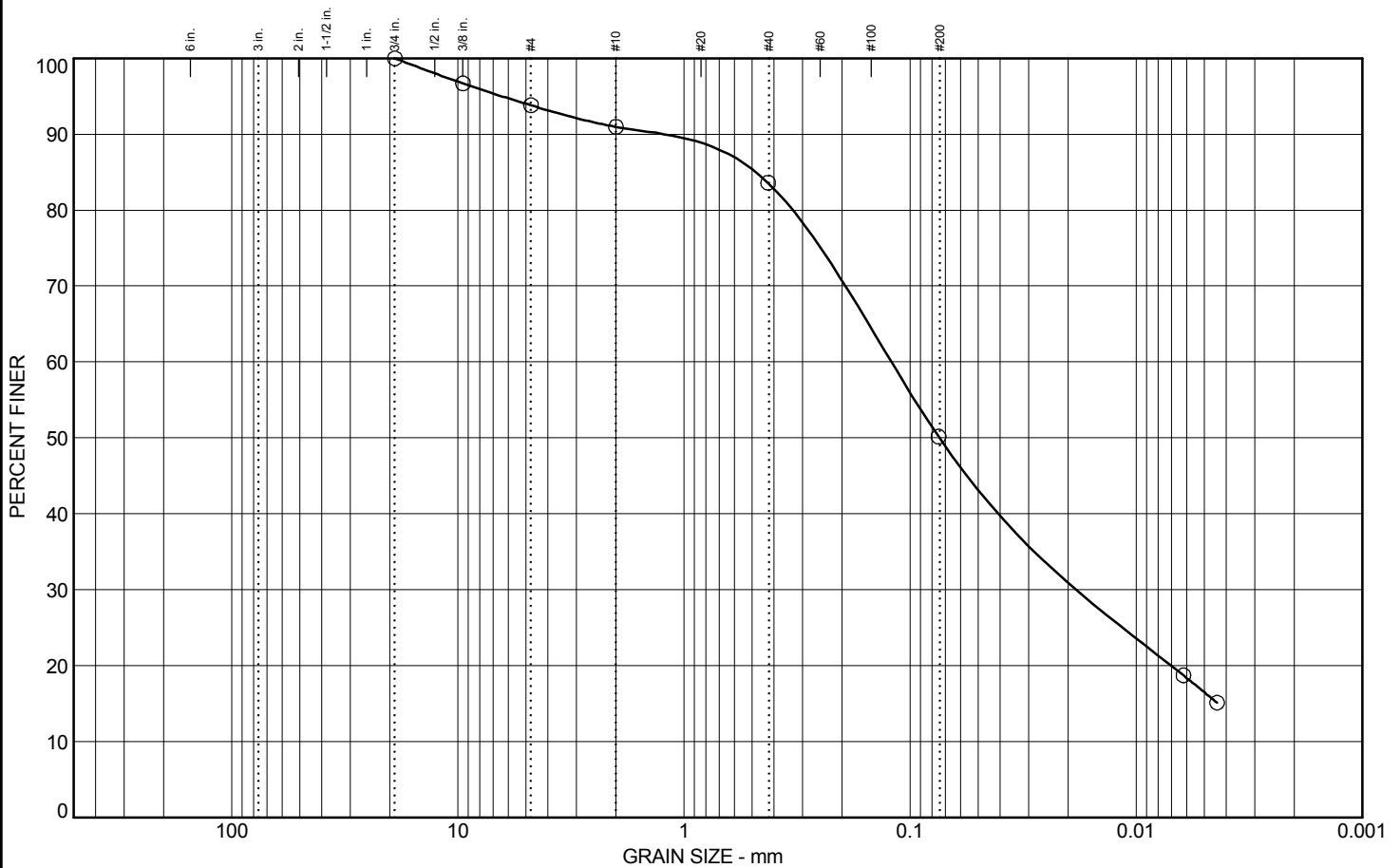
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.0	7.6	33.2	33.7	16.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.7		
4.75	93.8		
2	91.0		
0.425	83.6		
0.075	50.2		

* (no specification provided)

Soil Description

low plasticity clay, fine sand

General Characteristics

Moisture Content = 9.5%

Atterberg Limits

LL= 19

PL= 11

PI= 8

Coefficients

$D_{85} = 0.57$

$D_{60} = 0.125$

$D_{50} = 0.074$

$D_{30} = 0.015$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 13

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 26' / 716.29'



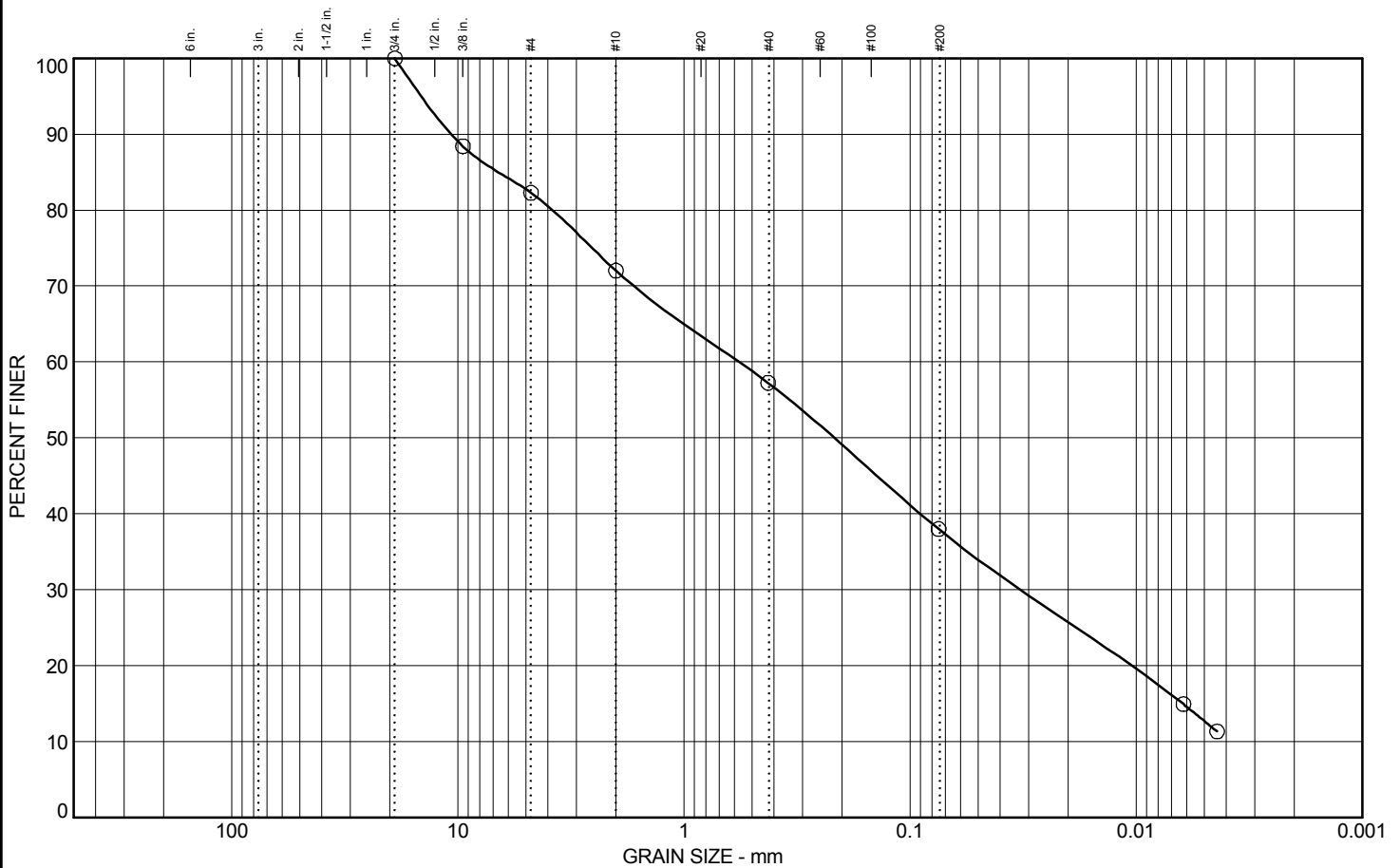
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	28.0	14.9	19.1	25.3	12.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	88.4		
4.75	82.3		
2	72.0		
0.425	57.2		
0.075	38.0		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 7.4%

Atterberg Limits

LL = 22

PL = 12

PI = 10

Coefficients

$D_{85} = 6.463$

$D_{60} = 0.567$

$D_{50} = 0.221$

$D_{30} = 0.032$

$D_{15} = 0.006$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 1

Sample No.: 17

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 38.5' / 703.79'



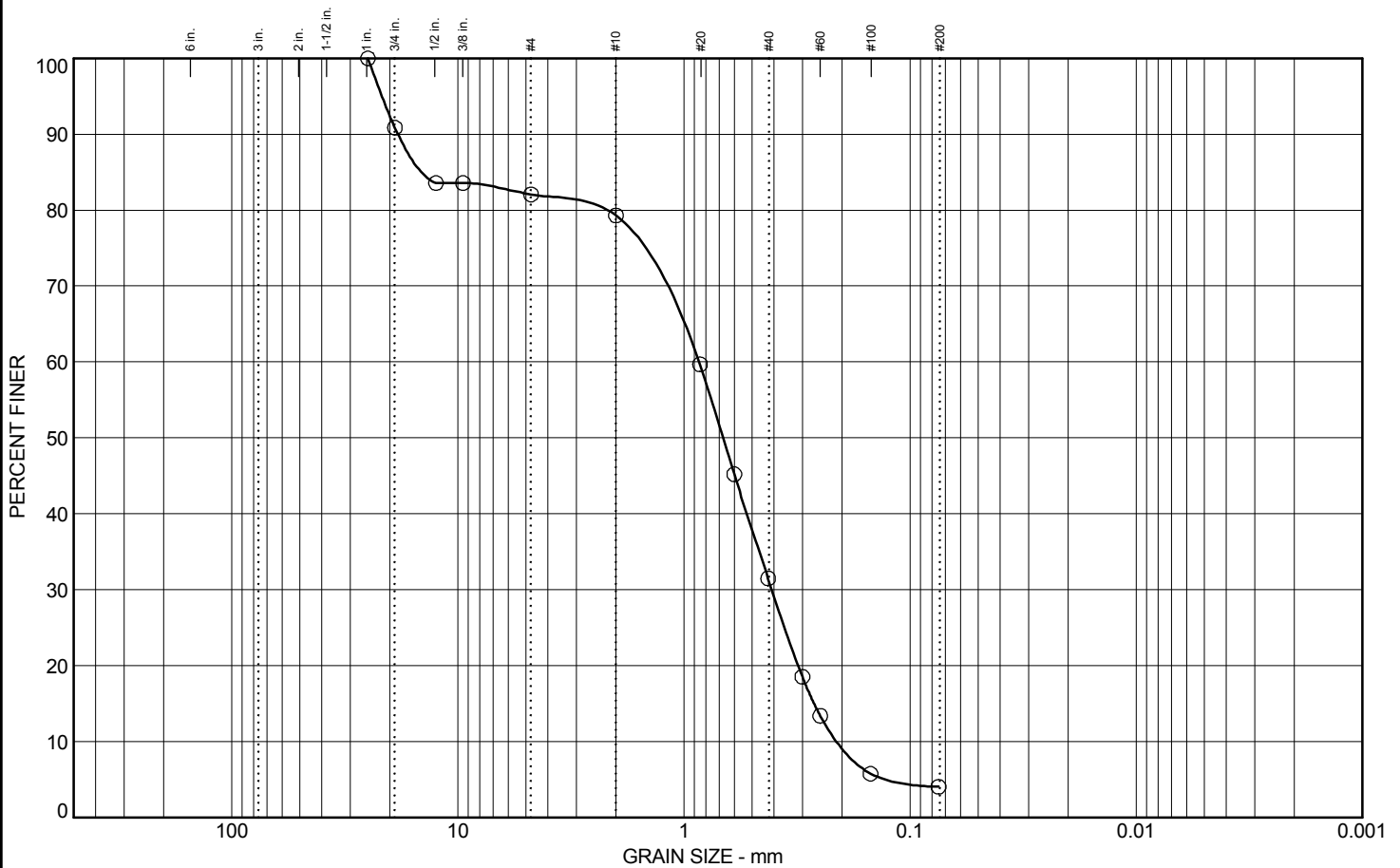
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	9.1	11.6	48.3	27.0	4.0	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	90.9		
12.5	83.6		
9.5	83.6		
4.75	82.1		
2	79.3		
0.85	59.7		
0.6	45.2		
0.425	31.5		
0.3	18.5		
0.25	13.4		
0.15	5.7		
0.075	4.0		

* (no specification provided)

Soil Description

fine to medium sand, fine to coarse gravel

General Characteristics

Moisture Content = 11.5%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 13.575$

$D_{60} = 0.862$

$D_{50} = 0.674$

$D_{30} = 0.409$

$D_{15} = 0.265$

$D_{10} = 0.2$

$C_u = 4.32$

$C_c = 0.97$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 19

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 48.5' / 693.79'



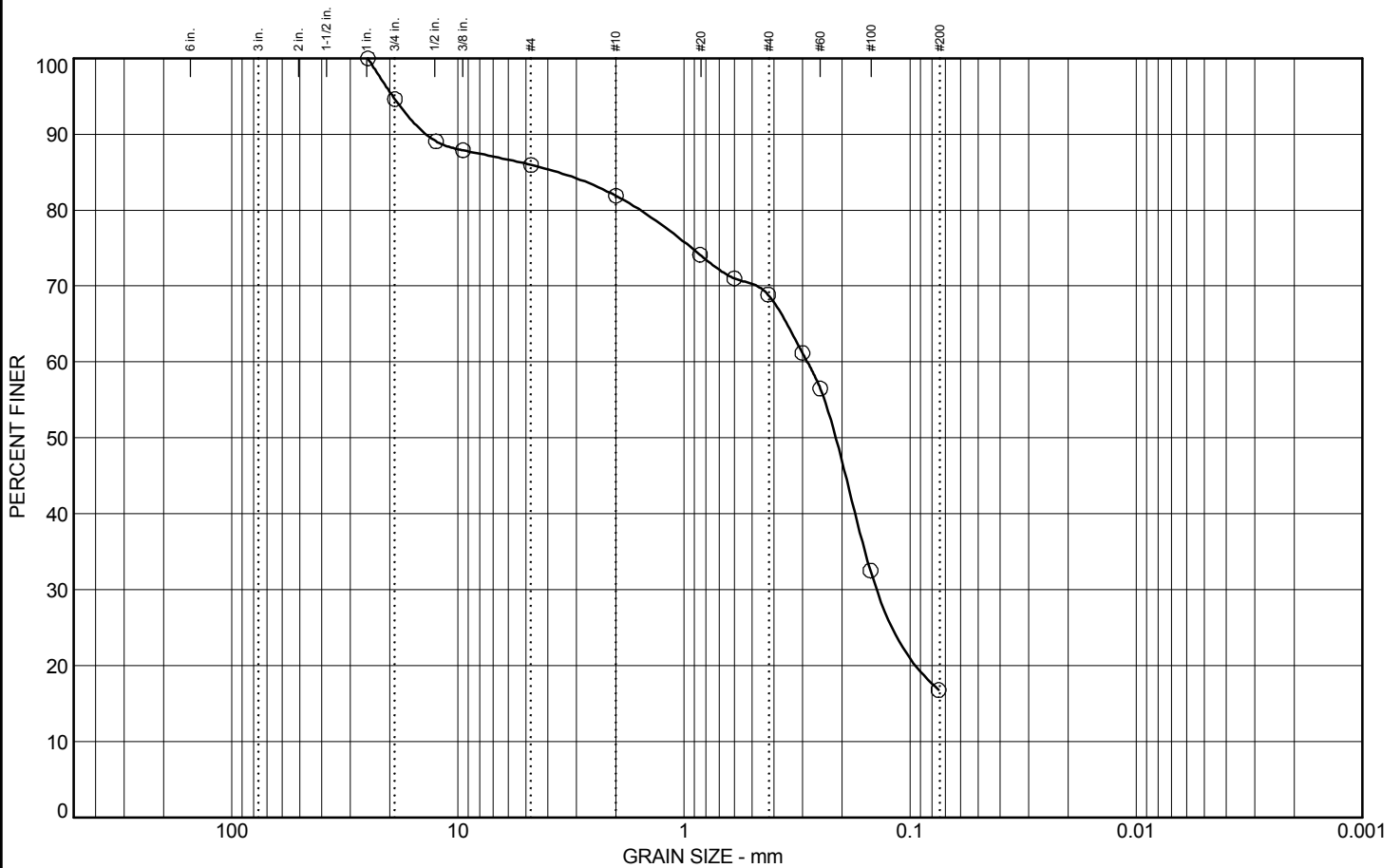
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	5.4	12.7	13.3	51.8	16.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	94.6		
12.5	89.1		
9.5	87.9		
4.75	86.0		
2	81.9		
0.85	74.1		
0.6	71.0		
0.425	68.9		
0.3	61.2		
0.25	56.5		
0.15	32.5		
0.075	16.8		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 14.0%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 3.879$

$D_{60} = 0.287$

$D_{50} = 0.218$

$D_{30} = 0.134$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 22

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 63.5' / 678.79'



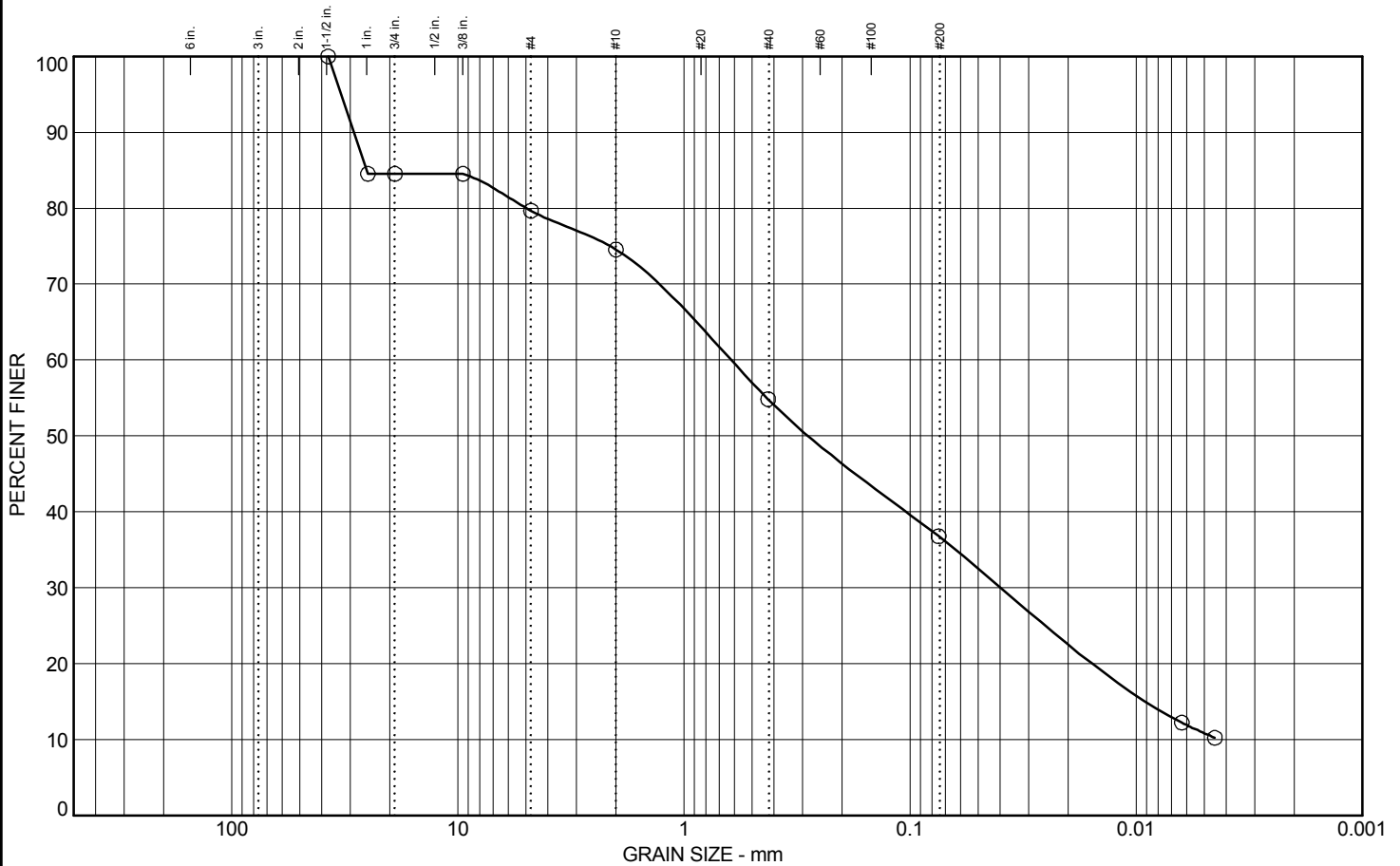
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	15.5	10.0	19.8	17.9	25.9	10.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
37.5	100.0		
25	84.5		
19	84.5		
9.5	84.5		
4.75	79.7		
2	74.5		
0.425	54.8		
0.075	36.8		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, coarse gravel

General Characteristics

Moisture Content = 10.3%

Atterberg Limits

LL= 22

PL= 11

PI= 11

Coefficients

$D_{85} = 25.317$

$D_{60} = 0.638$

$D_{50} = 0.267$

$D_{30} = 0.038$

$D_{15} = 0.008$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 1

Sample No.: 25

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 78.5' / 663.79'



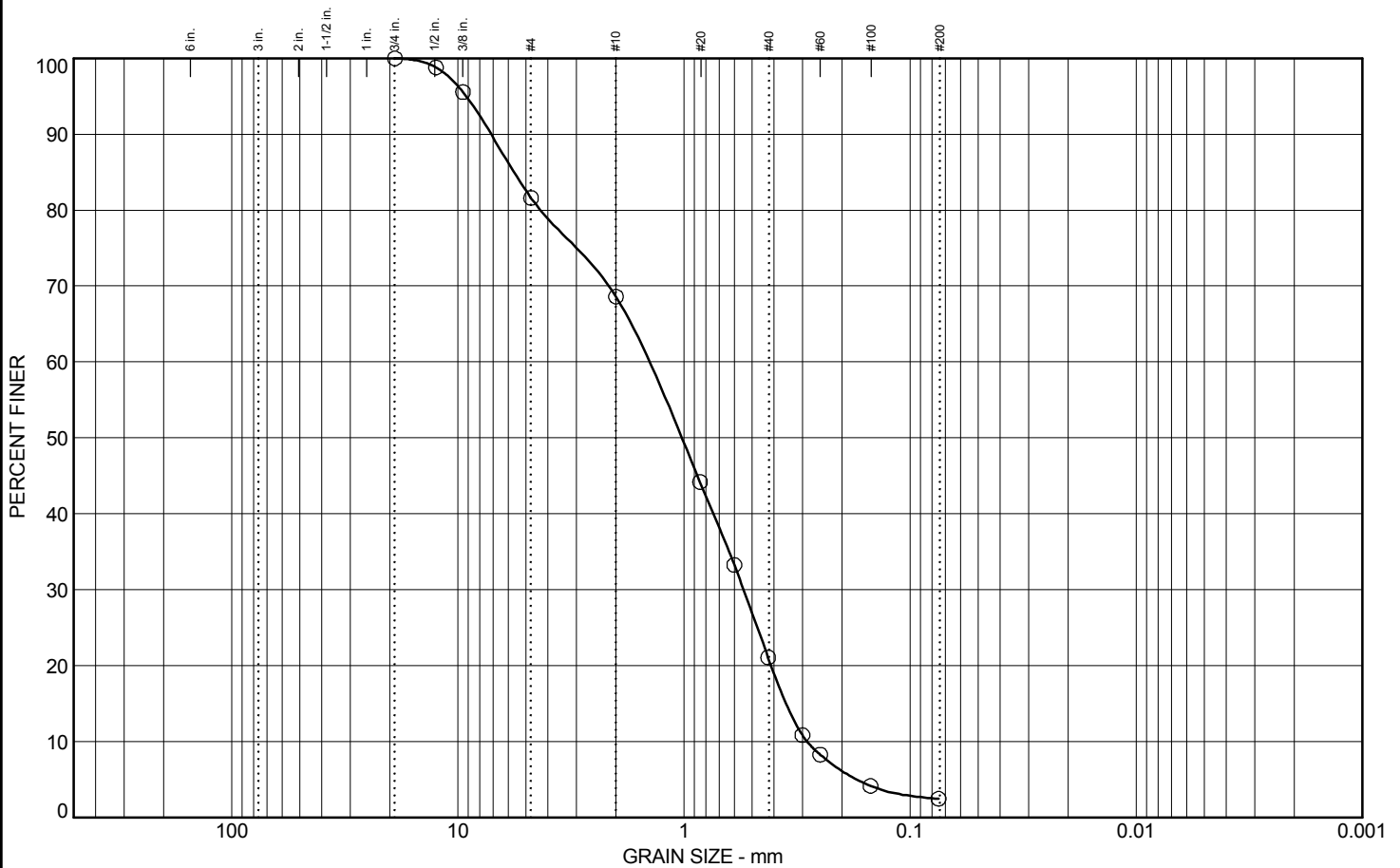
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	31.4	47.9	18.3	2.4	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	98.8		
9.5	95.6		
4.75	81.6		
2	68.6		
0.85	44.2		
0.6	33.2		
0.425	21.1		
0.3	10.8		
0.25	8.2		
0.15	4.1		
0.075	2.4		

* (no specification provided)

Soil Description

fine to medium sand, fine gravel

General Characteristics

Moisture Content = 15.9%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 5.624$

$D_{60} = 1.479$

$D_{50} = 1.042$

$D_{30} = 0.547$

$D_{15} = 0.346$

$D_{10} = 0.283$

$C_u = 5.23$

$C_c = 0.72$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 28

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 93.5' / 648.79'



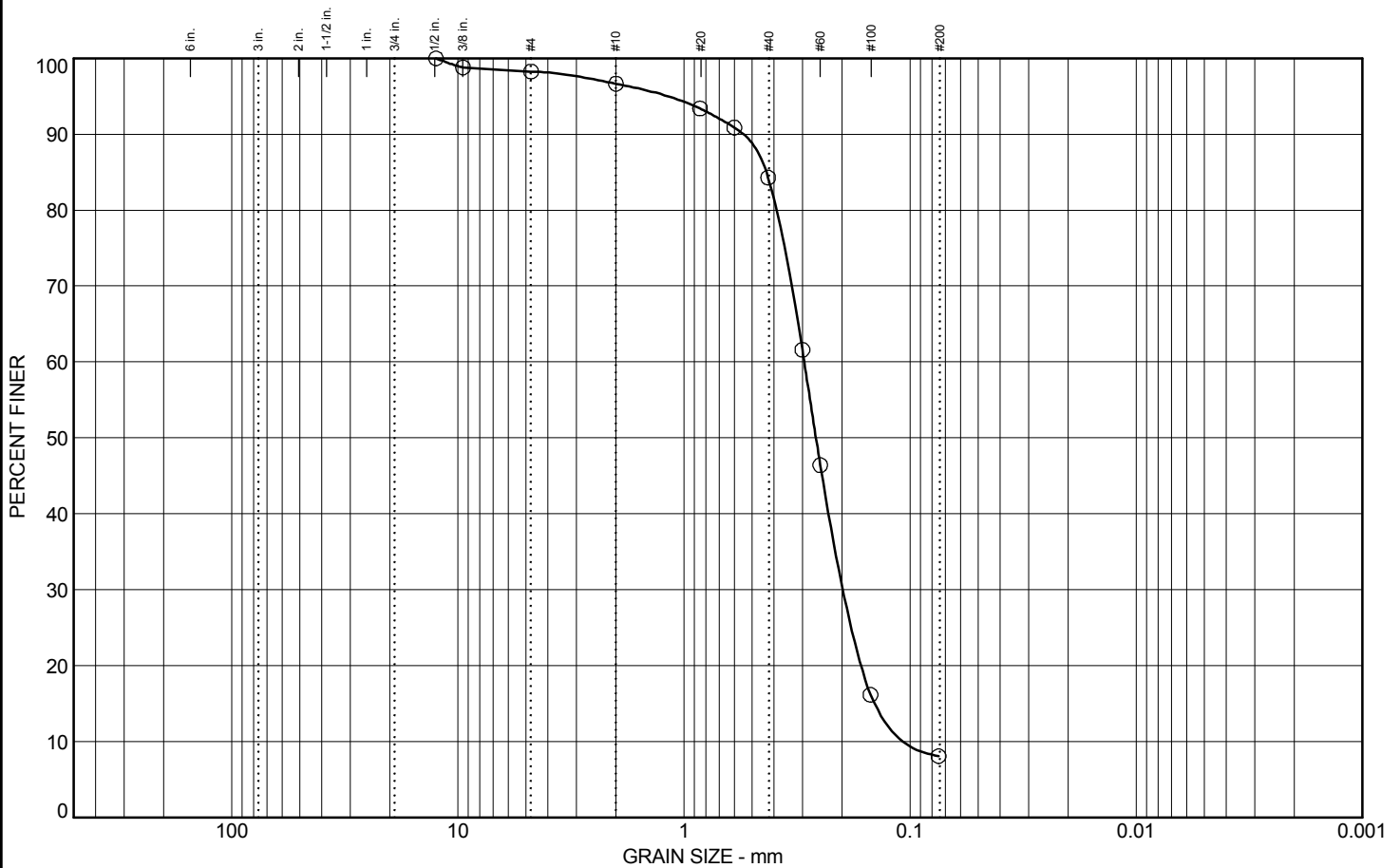
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	3.3	13.1	75.5	8.0	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	98.8		
4.75	96.7		
2	93.4		
0.85	90.9		
0.6	84.3		
0.425	61.6		
0.3	46.4		
0.25	16.1		
0.15	8.0		
0.075			

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 16.6%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.441$

$D_{60} = 0.294$

$D_{50} = 0.261$

$D_{30} = 0.19$

$D_{15} = 0.136$

$D_{10} = 0.089$

$C_u = 3.32$

$C_c = 1.38$

Classification

ODOT = A-3

Remarks

Group Index = 0

Sample No.: 30

Source of Sample: B-029

Location: -

Date:

Depth / Elev: 103.5' / 638.79'



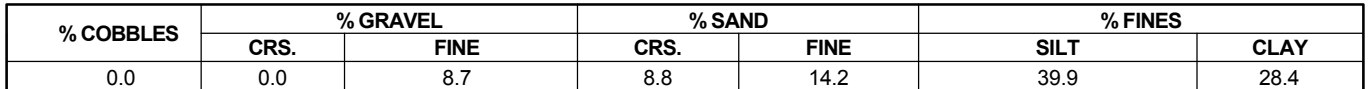
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

GRAIN SIZE II - DLZ MOD - GINT STD US LAB.GDT - 5/22/09 09:48 - S:\DEPT\GEOTECHNICAL\GINT\PROJECTS\0221-1004-01.GPJ

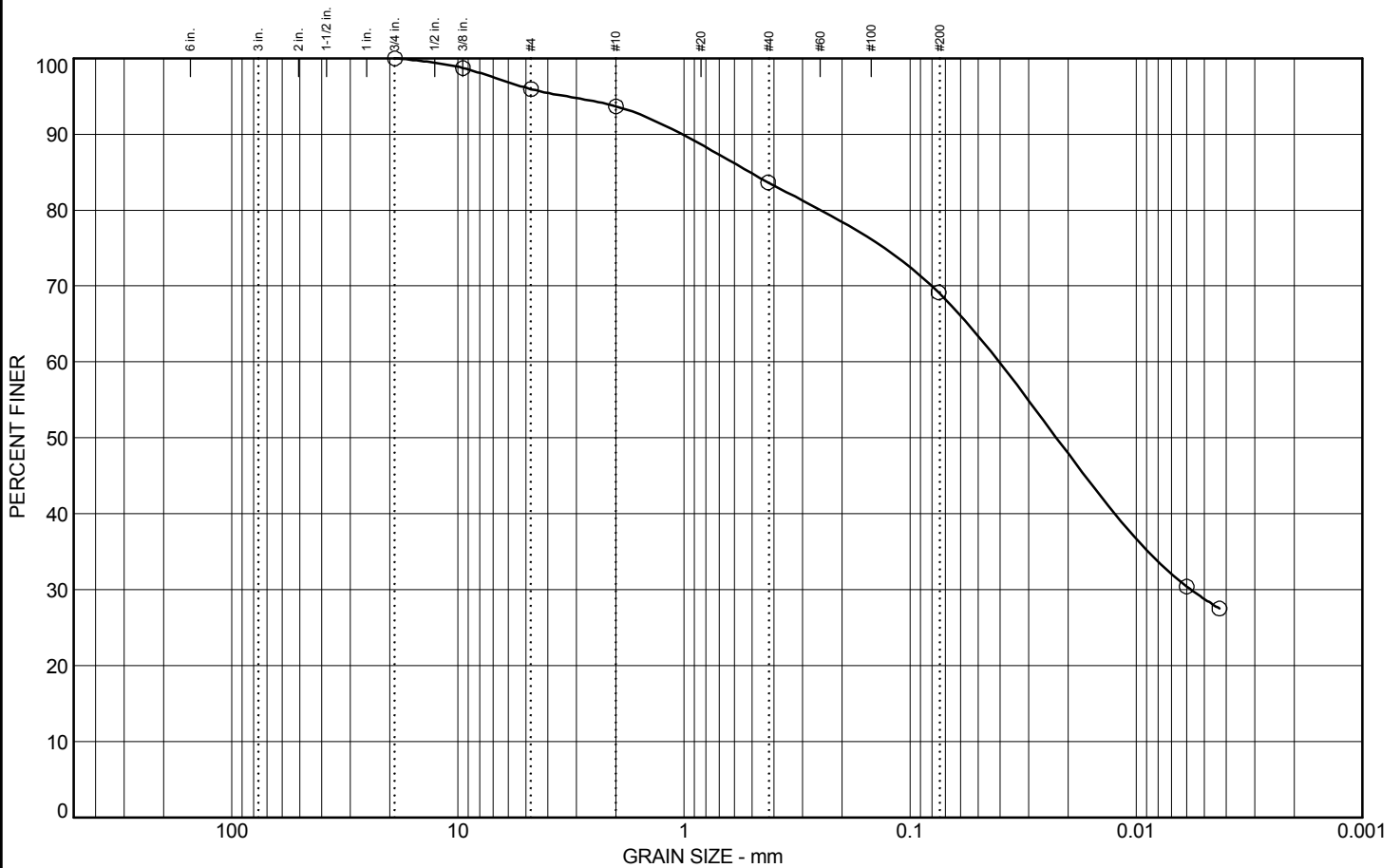


<u>Soil Description</u>		
low plasticity clay, fine to medium sand		
<u>General Characteristics</u>		
Moisture Content = 9.5%		
<u>Atterberg Limits</u>		
LL= 28	PL= 10	PI= 18
<u>Coefficients</u>		
D ₈₅ = 0.65	D ₆₀ = 0.043	D ₅₀ = 0.022
D ₃₀ = 0.006	D ₁₅ =	D ₁₀ =
C _u =	C _c =	
<u>Classification</u>		
ODOT = A-6b		
<u>Remarks</u>		
Group Index = 10		



Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.3	10.1	14.4	40.3	28.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.7		
4.75	95.9		
2	93.7		
0.425	83.7		
0.075	69.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.1%

Atterberg Limits

LL= 25

PL= 14

PI= 11

Coefficients

$D_{85} = 0.523$

$D_{30} = 0.006$

$C_u =$

$D_{60} = 0.041$

$D_{15} =$

$C_c =$

$D_{50} = 0.022$

$D_{10} =$

Classification

ODOT = A-6a

Remarks

Group Index = 7

Sample No.: 4

Location: -

Source of Sample: B-030

Date:

Depth / Elev: 6.5' / 730.15'



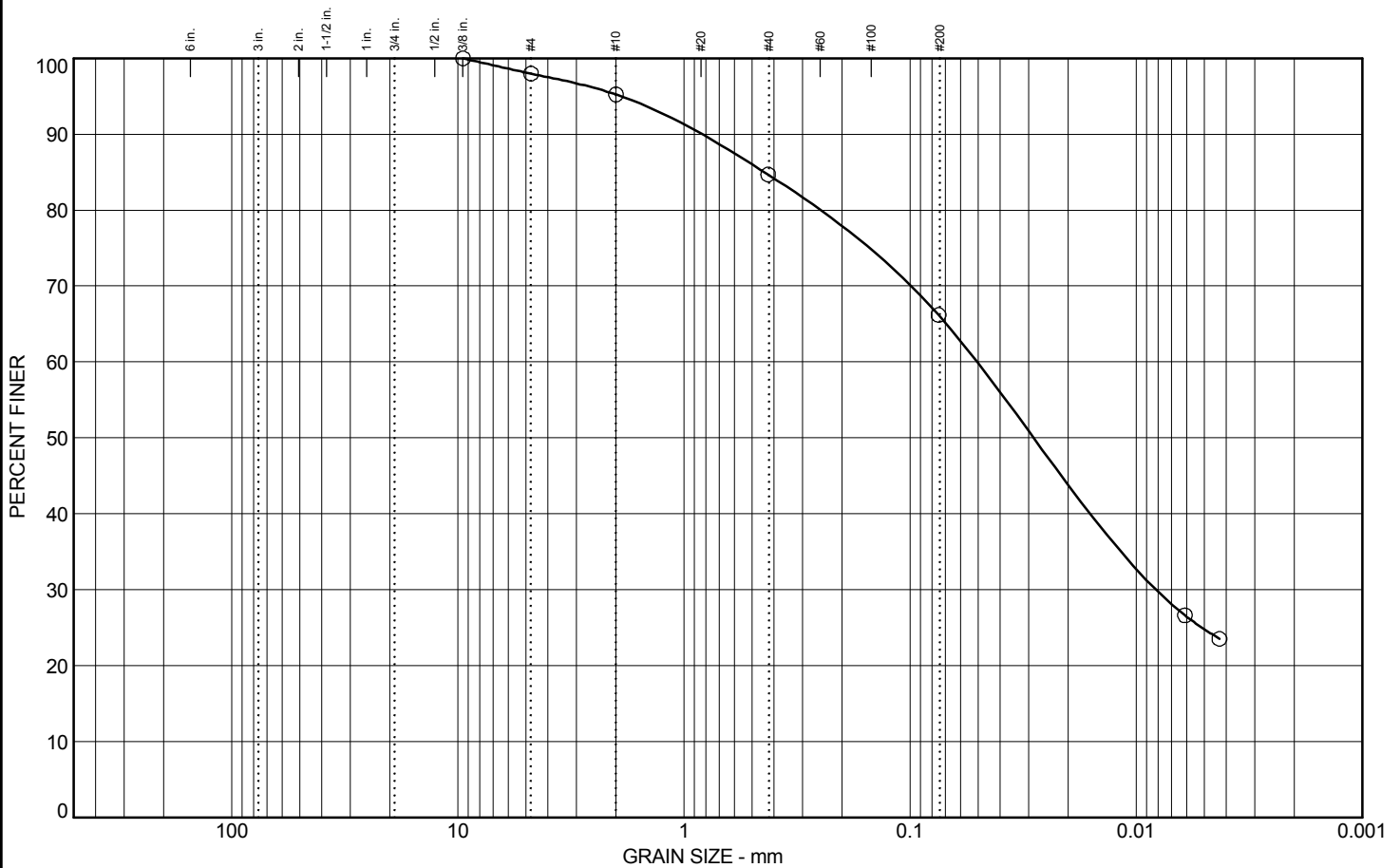
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	4.8	10.7	18.4	41.3	24.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	98.0		
2	95.2		
0.425	84.7		
0.075	66.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.8%

Atterberg Limits

LL= 23

PL= 14

PI= 9

Coefficients

$D_{85} = 0.445$

$D_{60} = 0.051$

$D_{50} = 0.027$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 7

Sample No.: 5

Source of Sample: B-030

Location: -

Date:

Depth / Elev: 8' / 728.65'



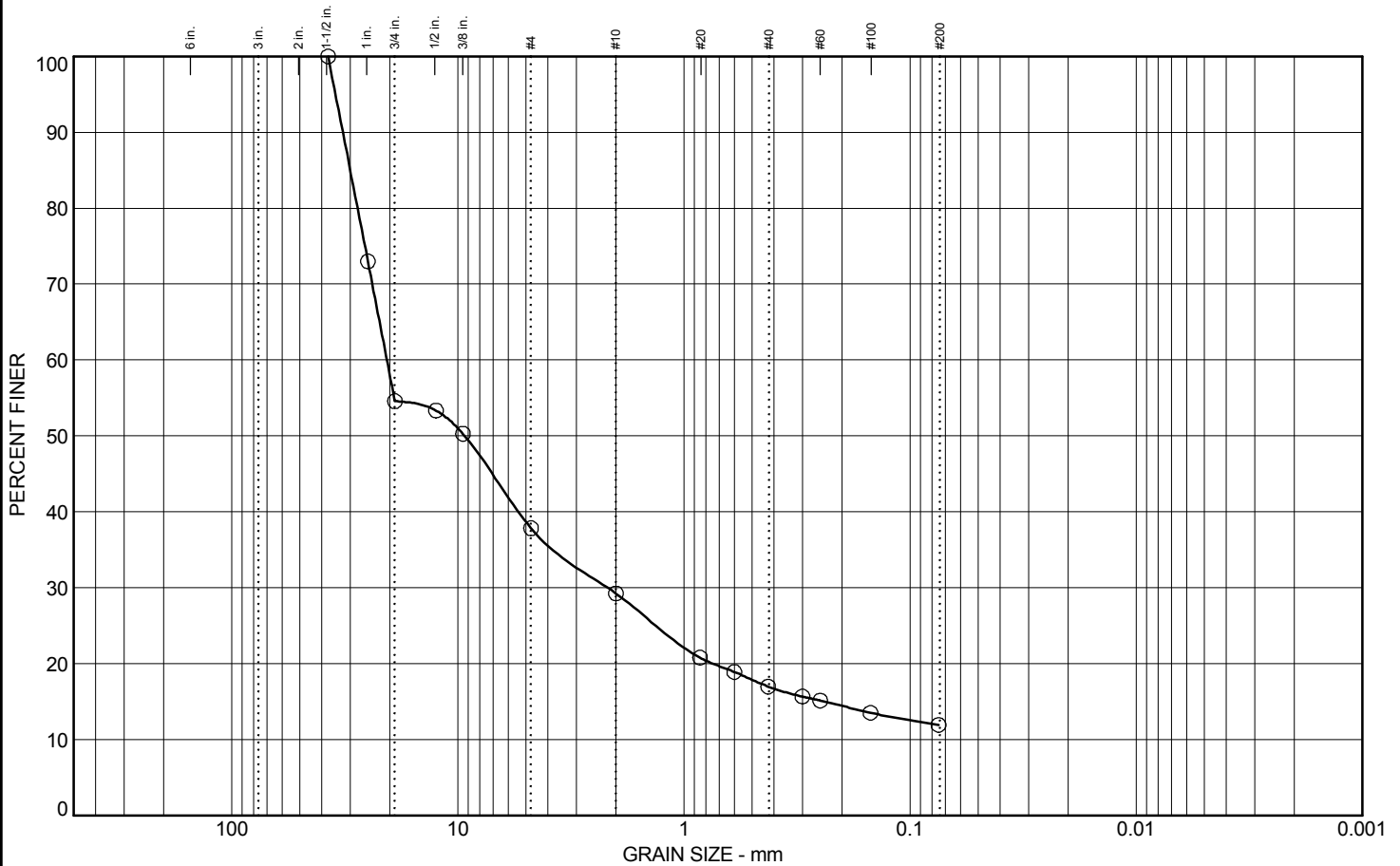
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	45.4	25.3	12.3	5.0	11.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
37.5	100.0		
25	73.0		
19	54.6		
12.5	53.3		
9.5	50.3		
4.75	37.8		
2	29.2		
0.85	20.8		
0.6	18.9		
0.425	17.0		
0.3	15.6		
0.25	15.1		
0.15	13.5		
0.075	11.9		

* (no specification provided)

Soil Description

coarse gravel, non-plastic silt, medium to coarse sand

General Characteristics

Moisture Content = 1.0%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 29.94$
 $D_{30} = 2.162$
 $C_u = 629.79$
 $D_{60} = 20.603$
 $D_{15} = 0.241$
 $C_c = 6.94$
 $D_{50} = 9.355$
 $D_{10} =$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 7

Location: -

Source of Sample: B-030

Date:

Depth / Elev: 11' / 725.65'



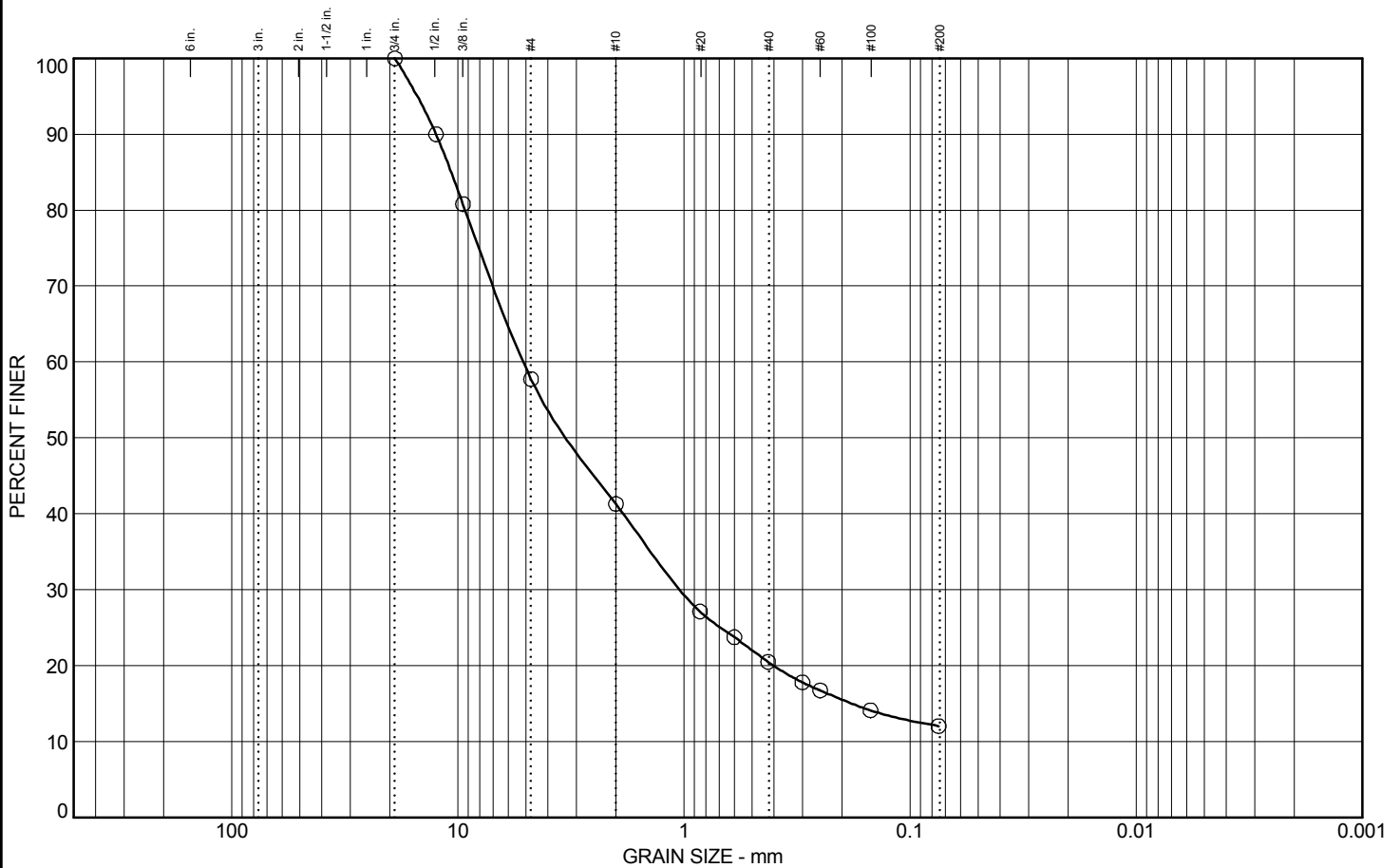
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	58.7	20.9	8.4	12.0	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	90.0		
9.5	80.8		
4.75	57.7		
2	41.3		
0.85	27.1		
0.6	23.7		
0.425	20.5		
0.3	17.8		
0.25	16.7		
0.15	14.1		
0.075	12.0		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 3.3%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 10.767$

$D_{60} = 5.085$

$D_{50} = 3.164$

$D_{30} = 1.012$

$D_{15} = 0.179$

$D_{10} =$

$C_u = 132.73$

$C_c = 5.26$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 8

Source of Sample: B-030

Location: -

Date:

Depth / Elev: 13.5' / 723.15'



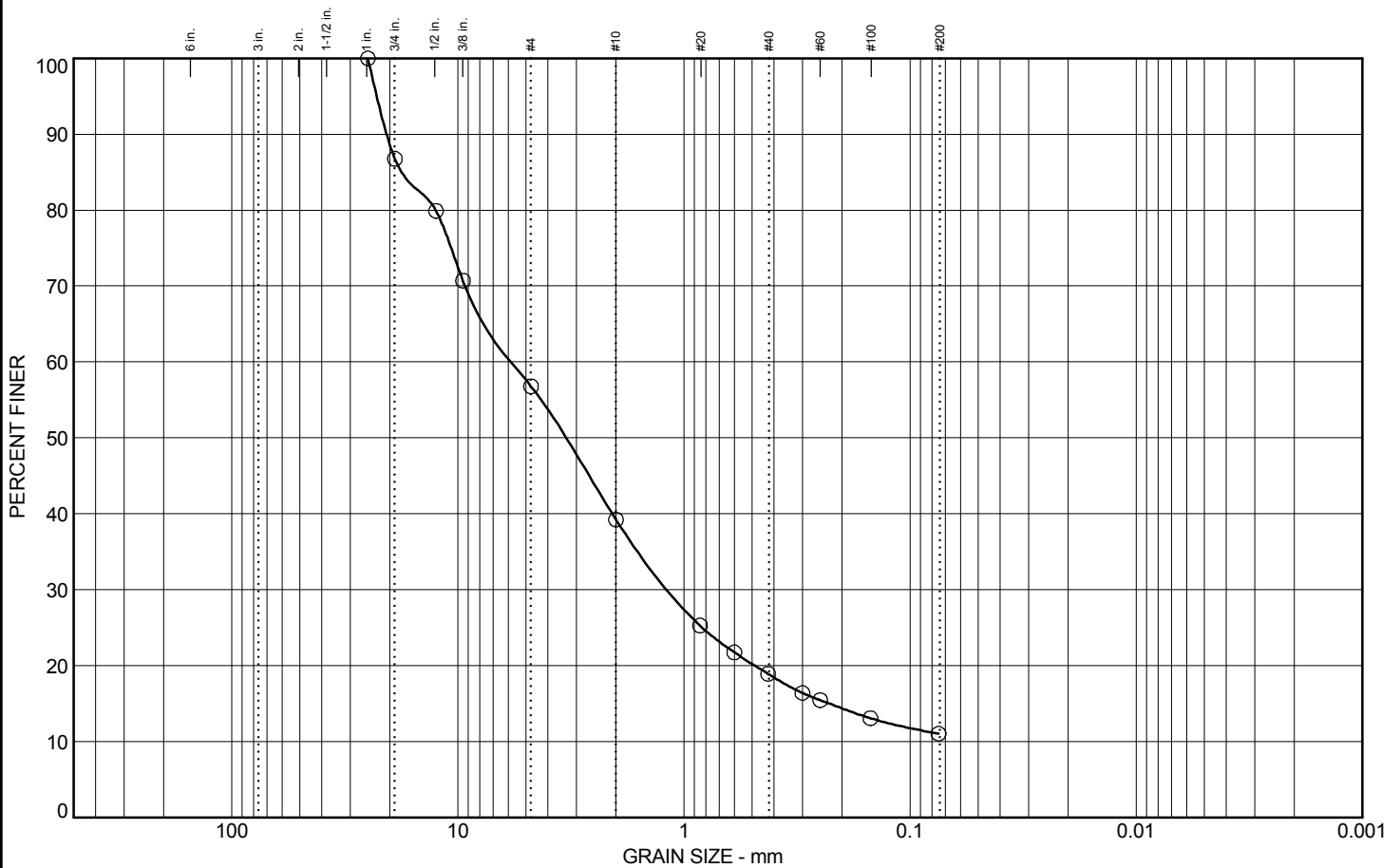
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	13.2	47.5	20.4	7.8	11.0	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	86.8		
12.5	79.9		
9.5	70.7		
4.75	56.8		
2	39.2		
0.85	25.3		
0.6	21.7		
0.425	18.9		
0.3	16.4		
0.25	15.4		
0.15	13.0		
0.075	11.0		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 7.7%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 17.069$

$D_{60} = 5.575$

$D_{50} = 3.401$

$D_{30} = 1.137$

$D_{15} = 0.228$

$D_{10} =$

$C_u = 104.73$

$C_c = 4.36$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 9

Source of Sample: B-030

Location: -

Date:

Depth / Elev: 16' / 720.65'



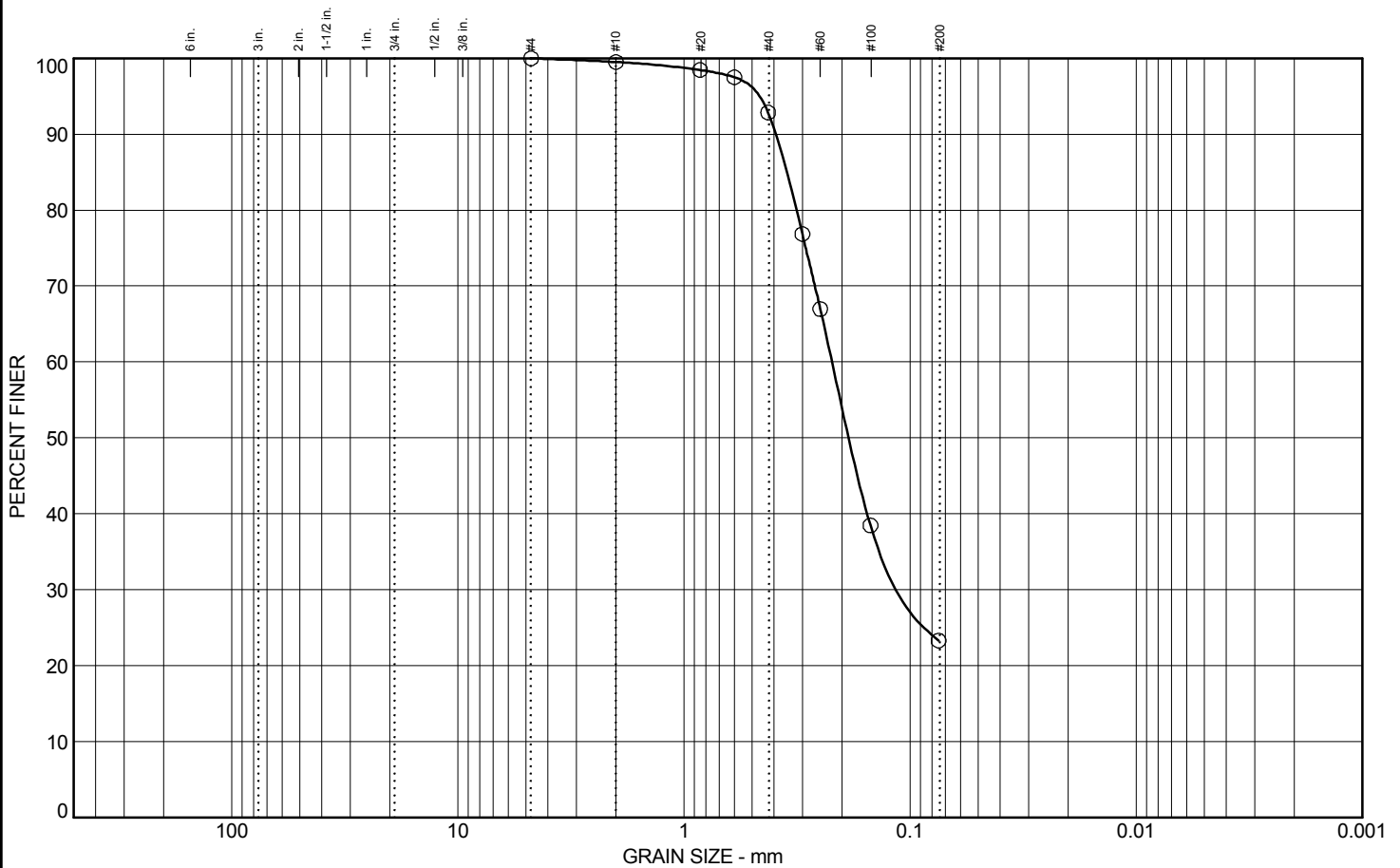
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.5	7.2	69.0	23.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	99.5		
0.85	98.5		
0.6	97.5		
0.425	92.9		
0.3	76.9		
0.25	67.0		
0.15	38.4		
0.075	23.3		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 18.7%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.358$

$D_{60} = 0.221$

$D_{50} = 0.184$

$D_{30} = 0.102$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 15

Source of Sample: B-030

Location: -

Date:

Depth / Elev: 33.5' / 703.15'



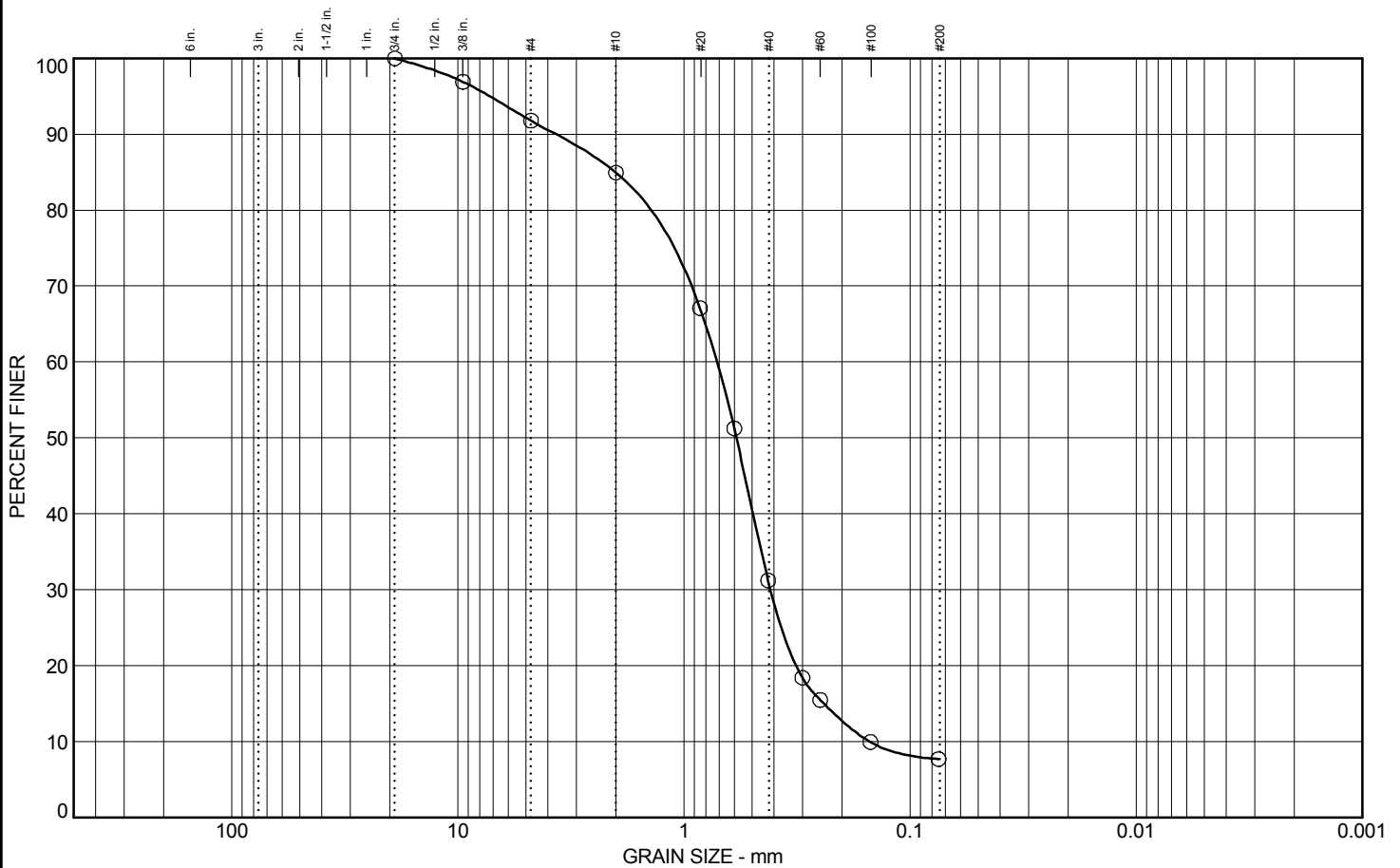
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	15.1	54.2	23.1	7.7	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.9		
4.75	91.8		
2	84.9		
0.85	67.1		
0.6	51.2		
0.425	31.2		
0.3	18.4		
0.25	15.5		
0.15	9.9		
0.075	7.7		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 13.0%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 2.016$

$D_{60} = 0.727$

$D_{50} = 0.587$

$D_{30} = 0.411$

$D_{15} = 0.24$

$D_{10} = 0.151$

$C_u = 4.81$

$C_c = 1.54$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 18

Source of Sample: B-030

Location: -

Date:

Depth / Elev: 48.5' / 688.15'



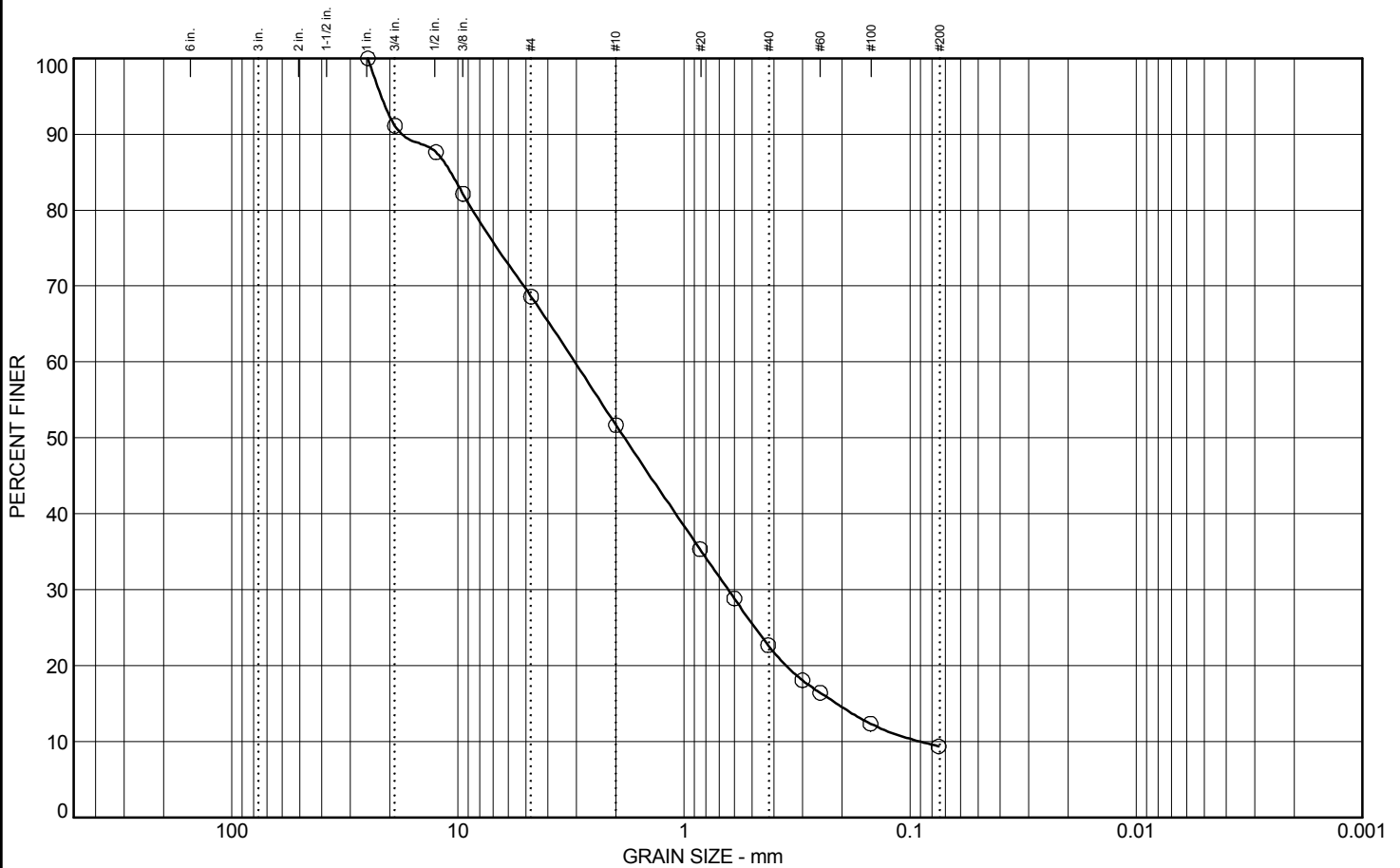
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	8.9	39.5	29.2	13.2	9.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	91.1		
12.5	87.6		
9.5	82.2		
4.75	68.6		
2	51.7		
0.85	35.3		
0.6	28.8		
0.425	22.7		
0.3	18.0		
0.25	16.4		
0.15	12.3		
0.075	9.3		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 7.9%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 10.954$

$D_{60} = 3.06$

$D_{50} = 1.832$

$D_{30} = 0.639$

$D_{15} = 0.21$

$D_{10} = 0.087$

$C_u = 34.99$

$C_c = 1.52$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 22

Source of Sample: B-030

Location: -

Date:

Depth / Elev: 68.5' / 668.15'



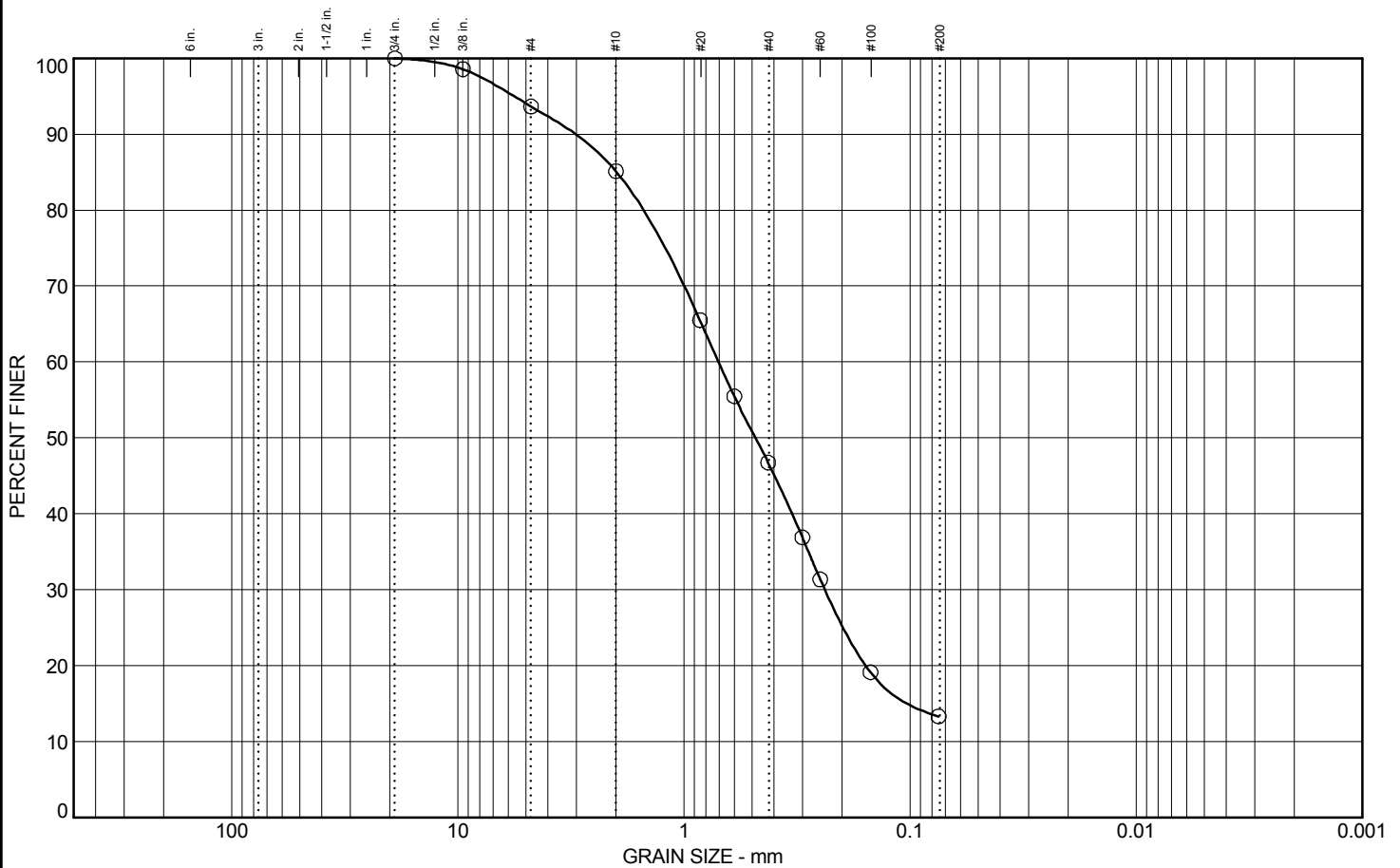
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	14.9	38.7	33.1	13.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.6		
4.75	93.6		
2	85.1		
0.85	65.5		
0.6	55.5		
0.425	46.7		
0.3	36.9		
0.25	31.3		
0.15	19.1		
0.075	13.3		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 11.2%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 1.989$

$D_{30} = 0.236$

$C_u =$

$D_{60} = 0.702$

$D_{15} = 0.092$

$C_c =$

$D_{50} = 0.484$

$D_{10} =$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 25

Location: -

Source of Sample: B-030

Date:

Depth / Elev: 83.5' / 653.15'



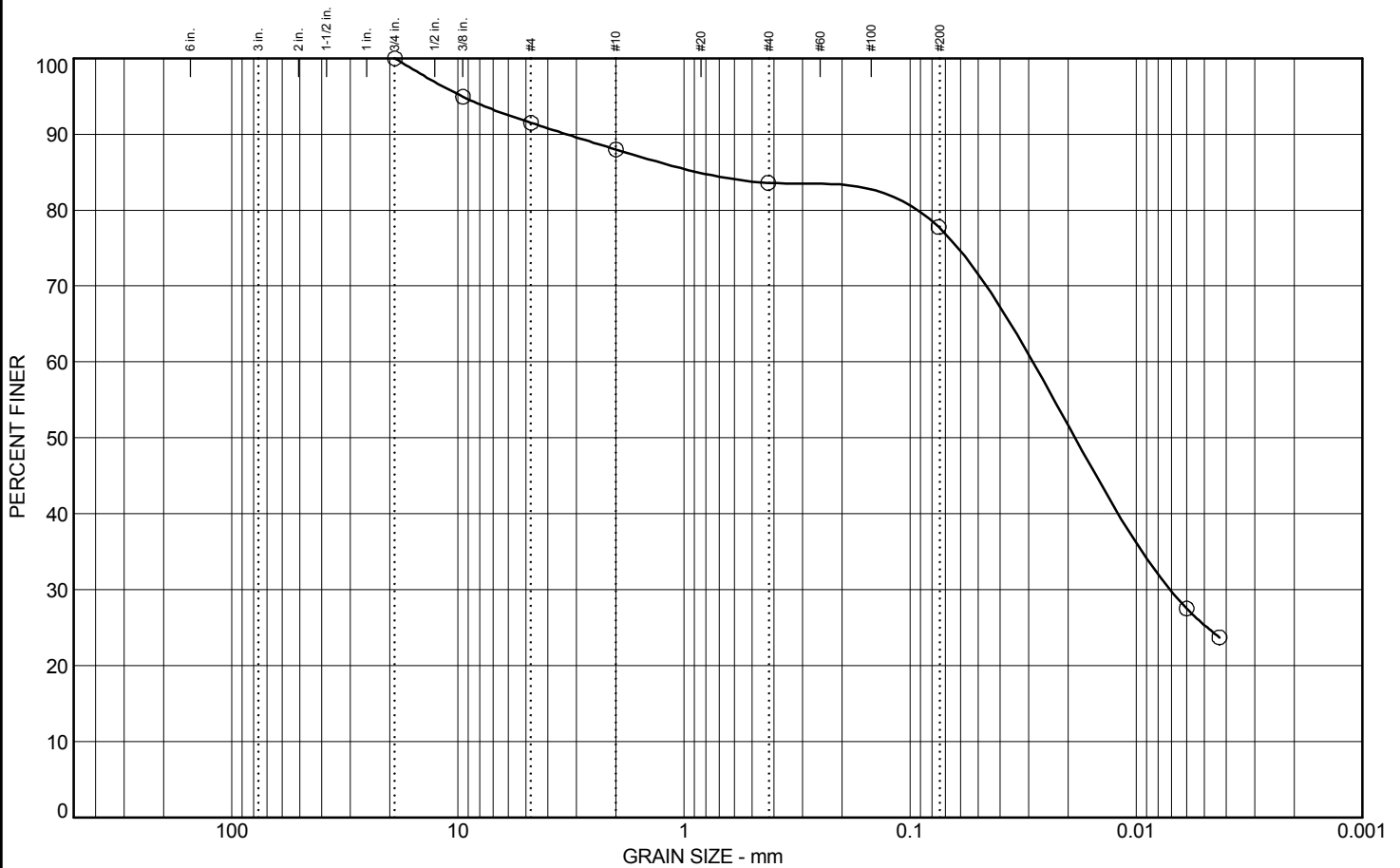
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.0	4.4	5.8	52.4	25.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.9		
4.75	91.5		
2	88.0		
0.425	83.6		
0.075	77.8		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.0%

Atterberg Limits

LL= 23

PL= 14

PI= 9

Coefficients

$D_{85} = 0.698$

$D_{60} = 0.031$

$D_{50} = 0.019$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4b

Remarks

Group Index = 9

Sample No.: 2

Source of Sample: B-031

Location: -

Date:

Depth / Elev: 2.5' / 733.11'



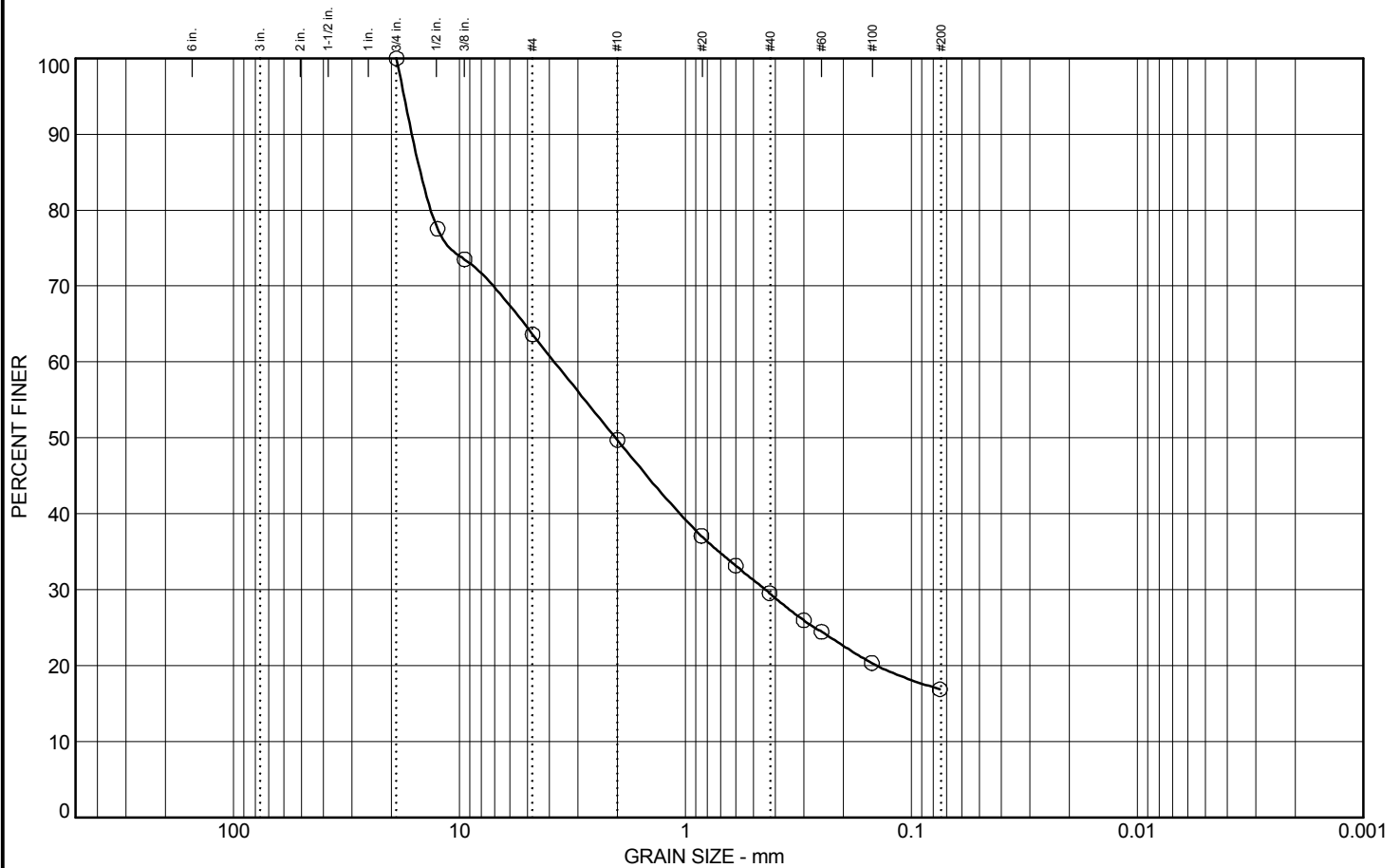
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	50.3	20.3	12.6	16.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	77.5		
9.5	73.5		
4.75	63.6		
2	49.7		
0.85	37.1		
0.6	33.1		
0.425	29.5		
0.3	26.0		
0.25	24.4		
0.15	20.3		
0.075	16.9		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 5.2%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 14.365$
 $D_{30} = 0.444$
 $C_u =$
 $D_{60} = 3.792$
 $D_{15} =$
 $C_c =$
 $D_{50} = 2.036$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 3
Location: -

Source of Sample: B-031

Date:
Depth / Elev: 4' / 731.61'



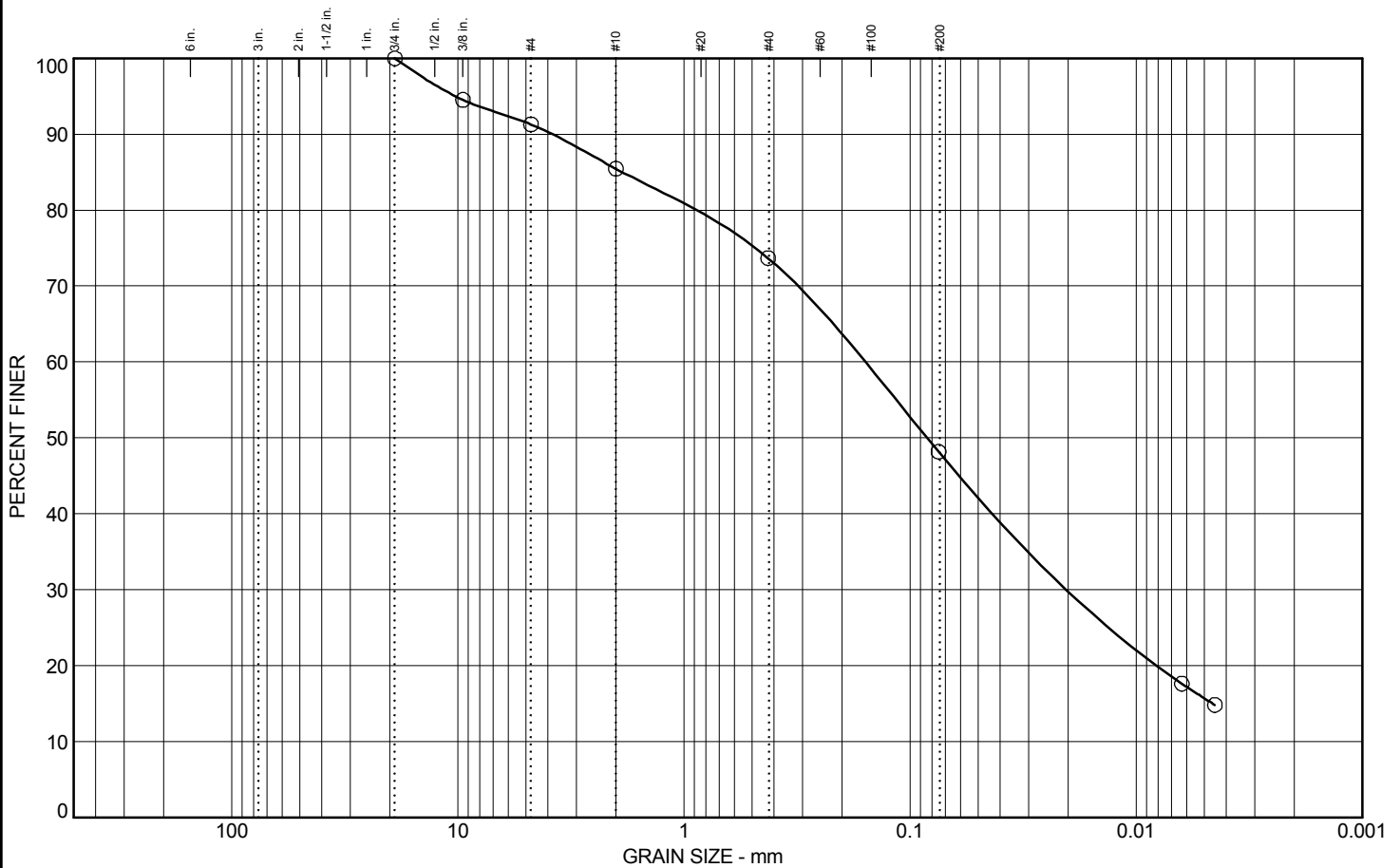
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	14.6	12.0	25.3	32.5	15.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.5		
4.75	91.3		
2	85.4		
0.425	73.7		
0.075	48.2		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 7.6%

Atterberg Limits

LL= 20

PL= 15

PI= 5

Coefficients

$D_{85} = 1.885$

$D_{60} = 0.168$

$D_{50} = 0.085$

$D_{30} = 0.017$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 6A

Source of Sample: B-031

Location: -

Date:

Depth / Elev: 8.5' / 727.11'



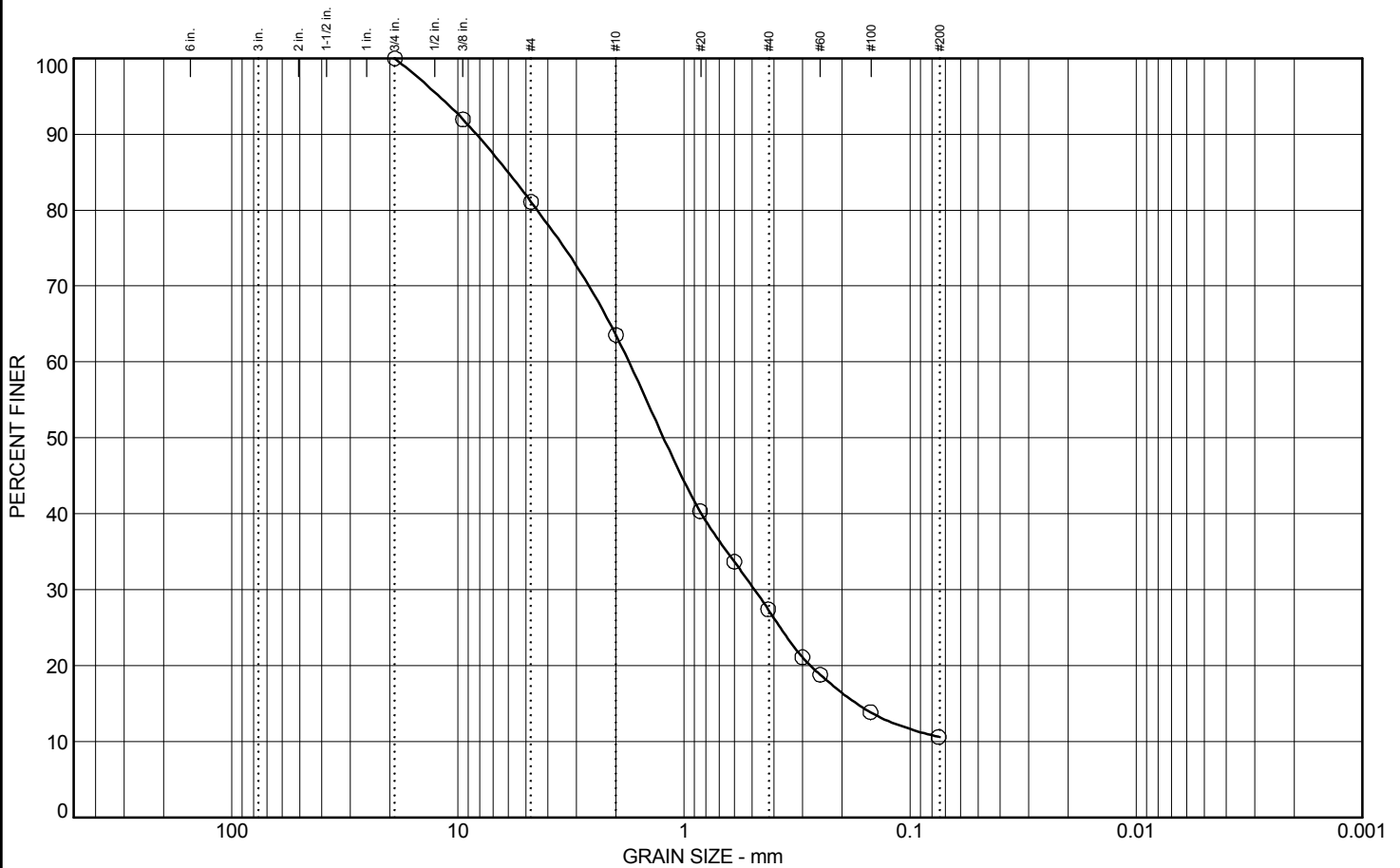
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	36.4	36.4	16.6	10.6	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	91.9		
4.75	81.1		
2	63.6		
0.85	40.3		
0.6	33.7		
0.425	27.4		
0.3	21.1		
0.25	18.8		
0.15	13.8		
0.075	10.6		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 4.0%

Atterberg Limits

LL =

PL =

PI = Non-plastic

Coefficients

$D_{85} = 6.1$

$D_{60} = 1.754$

$D_{50} = 1.213$

$D_{30} = 0.49$

$D_{15} = 0.169$

$D_{10} =$

$C_u = 26.40$

$C_c = 2.06$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 3

Source of Sample: B-033

Location: -

Date:

Depth / Elev: 5' / 725.51'



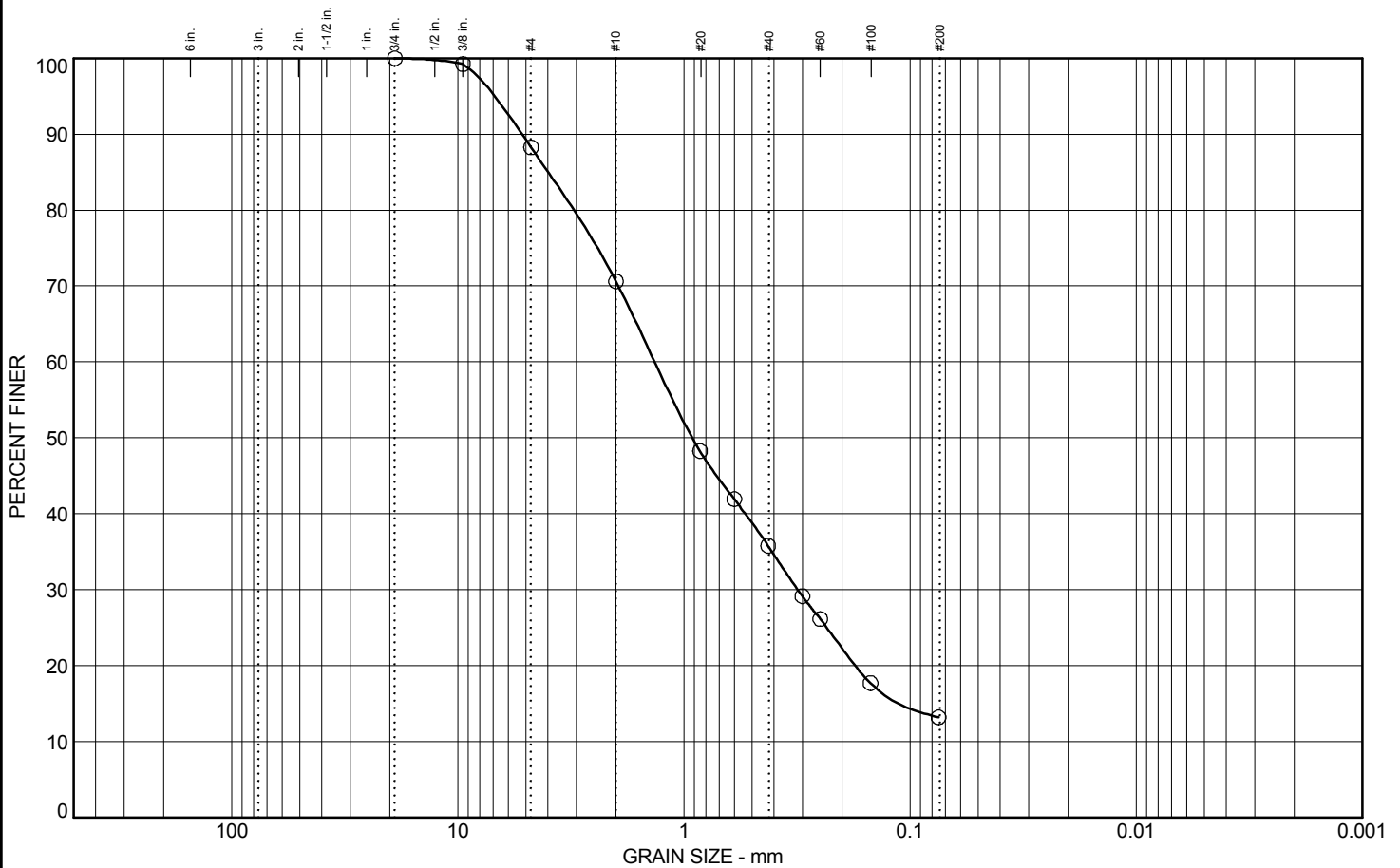
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	29.4	35.1	22.4	13.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.2		
4.75	88.3		
2	70.6		
0.85	48.3		
0.6	41.9		
0.425	35.8		
0.3	29.1		
0.25	26.1		
0.15	17.7		
0.075	13.2		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 10.4%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 4.048$

$D_{60} = 1.332$

$D_{50} = 0.909$

$D_{30} = 0.314$

$D_{15} = 0.099$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 4

Source of Sample: B-033

Location: -

Date:

Depth / Elev: 6.5' / 724.01'



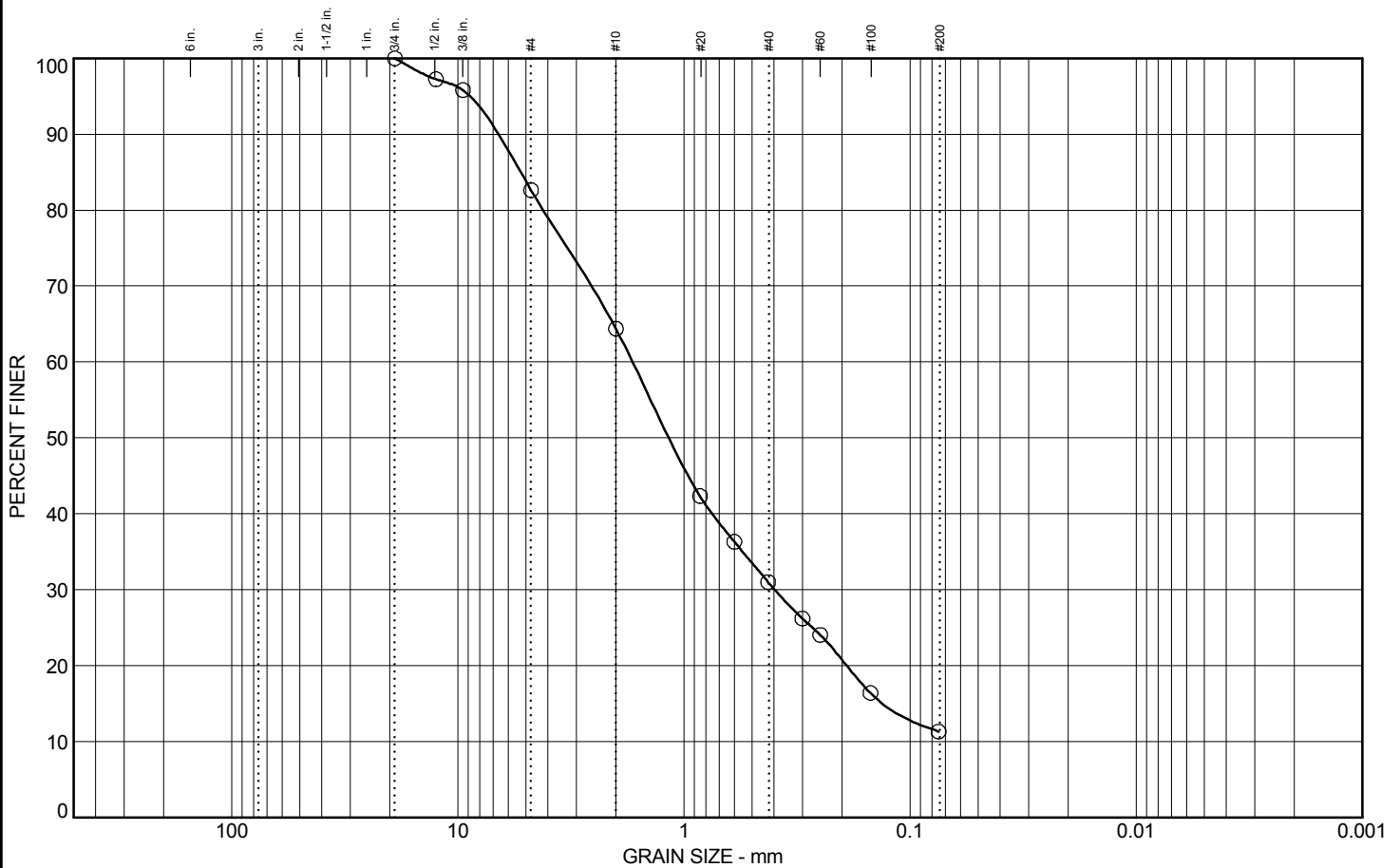
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	35.6	33.5	19.5	11.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	97.2		
9.5	95.8		
4.75	82.6		
2	64.4		
0.85	42.3		
0.6	36.3		
0.425	31.0		
0.3	26.2		
0.25	24.0		
0.15	16.4		
0.075	11.3		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 11.6%

Atterberg Limits

LL =

PL =

PI = Non-plastic

Coefficients

$D_{85} = 5.379$

$D_{60} = 1.688$

$D_{50} = 1.145$

$D_{30} = 0.396$

$D_{15} = 0.124$

$D_{10} =$

$C_u = 26.82$

$C_c = 1.47$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 5

Source of Sample: B-033

Location: -

Date:

Depth / Elev: 8' / 722.51'



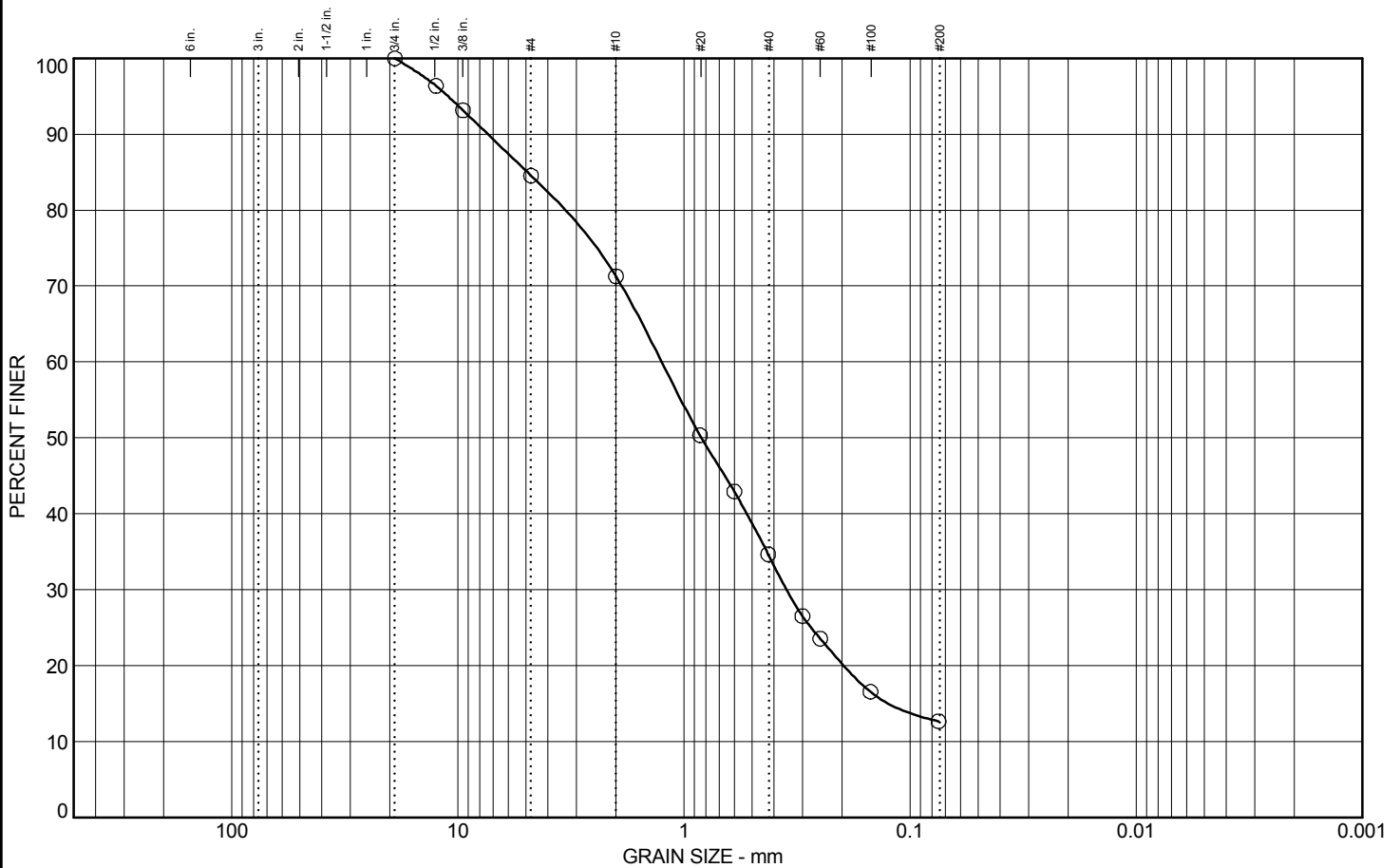
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	28.7	36.9	21.7	12.6	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	96.4		
9.5	93.2		
4.75	84.5		
2	71.3		
0.85	50.3		
0.6	42.9		
0.425	34.7		
0.3	26.5		
0.25	23.5		
0.15	16.5		
0.075	12.6		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 13.2%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 4.93$

$D_{60} = 1.261$

$D_{50} = 0.837$

$D_{30} = 0.348$

$D_{15} = 0.114$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 6

Source of Sample: B-033

Location: -

Date:

Depth / Elev: 9.5' / 721.01'



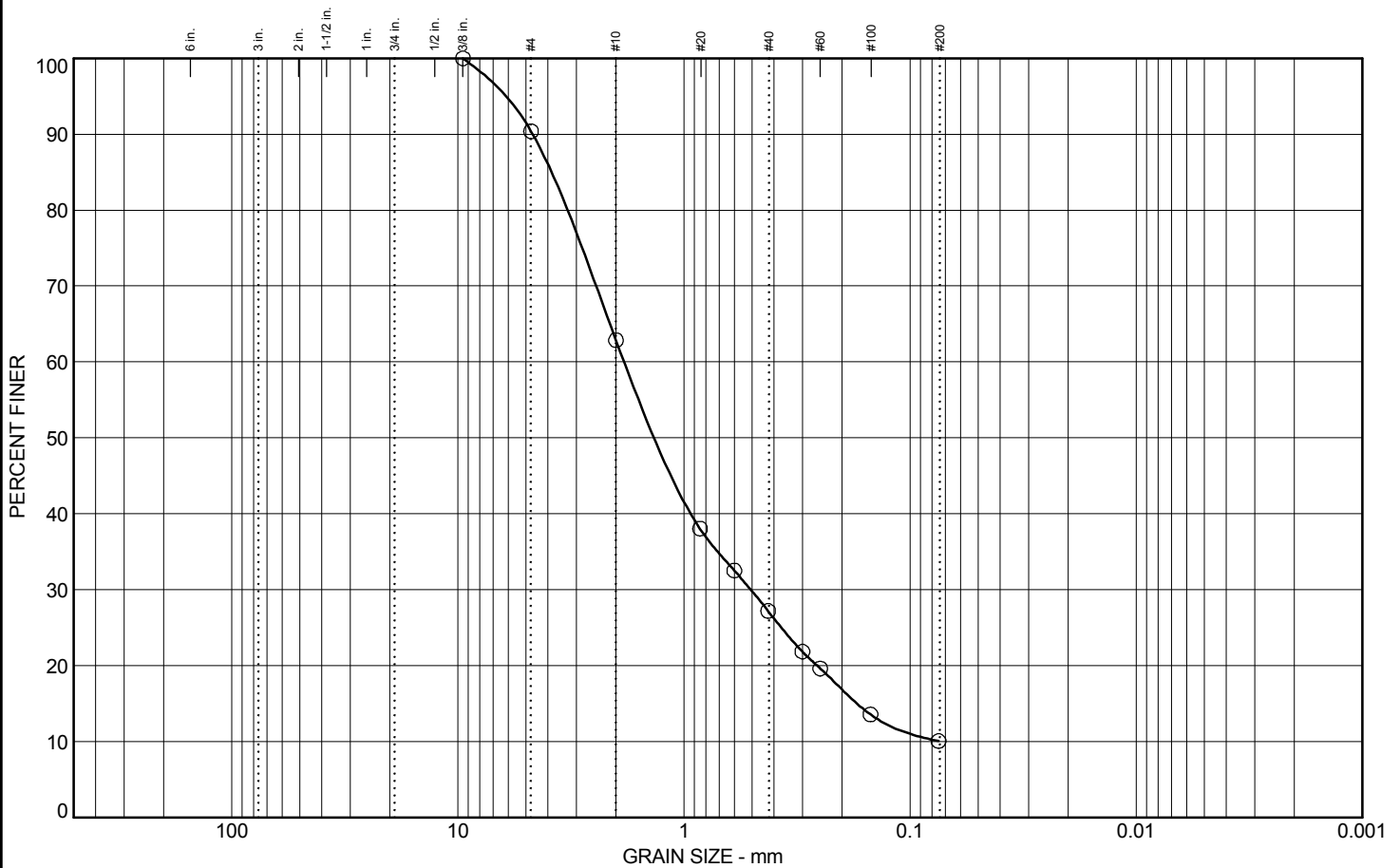
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	37.1	35.9	17.0	10.0	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	90.4		
2	62.9		
0.85	38.0		
0.6	32.5		
0.425	27.2		
0.3	21.8		
0.25	19.6		
0.15	13.5		
0.075	10.0		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt

General Characteristics

Moisture Content = 3.8%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 4.01$

$D_{60} = 1.812$

$D_{50} = 1.284$

$D_{30} = 0.51$

$D_{15} = 0.17$

$D_{10} =$

$C_u = 24.33$

$C_c = 1.93$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 3

Source of Sample: B-035

Location: -

Date:

Depth / Elev: 4.5' / 727.79'



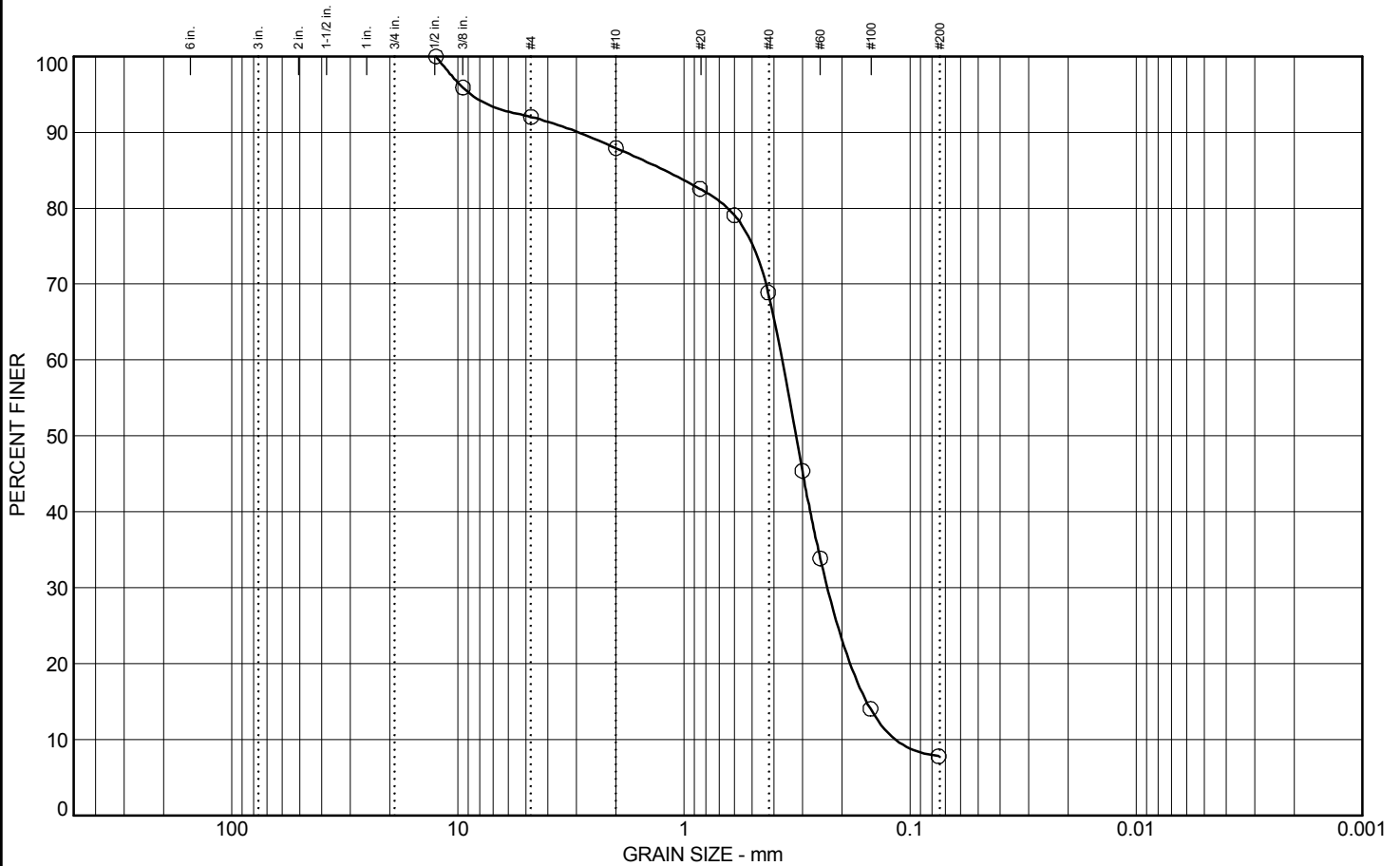
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.1	19.8	60.3	7.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	95.9		
4.75	92.0		
2	87.9		
0.85	82.6		
0.6	79.1		
0.425	68.9		
0.3	45.4		
0.25	33.8		
0.15	14.0		
0.075	7.8		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 4.5%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 1.255$

$D_{60} = 0.373$

$D_{50} = 0.321$

$D_{30} = 0.226$

$D_{15} = 0.154$

$D_{10} = 0.096$

$C_u = 3.88$

$C_c = 1.43$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 4

Source of Sample: B-035

Location: -

Date:

Depth / Elev: 6' / 726.29'



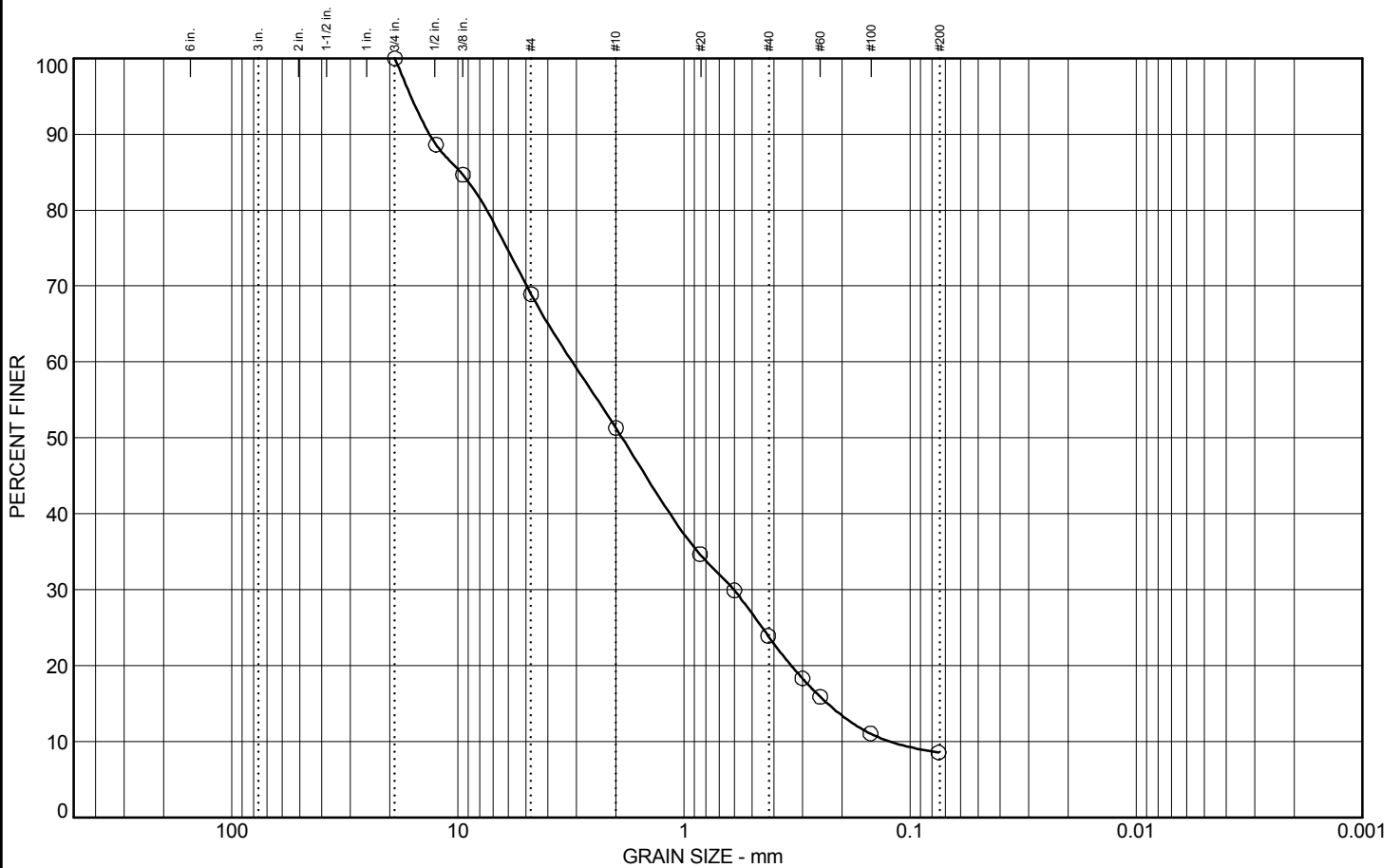
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	48.7	27.6	15.2	8.5	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	88.6		
9.5	84.7		
4.75	68.9		
2	51.3		
0.85	34.7		
0.6	29.9		
0.425	23.9		
0.3	18.3		
0.25	15.9		
0.15	11.0		
0.075	8.5		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 4.1%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 9.727$

$D_{60} = 3.066$

$D_{50} = 1.872$

$D_{30} = 0.605$

$D_{15} = 0.228$

$D_{10} = 0.113$

$C_u = 27.20$

$C_c = 1.06$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 5

Source of Sample: B-035

Location: -

Date:

Depth / Elev: 7.5' / 724.79'



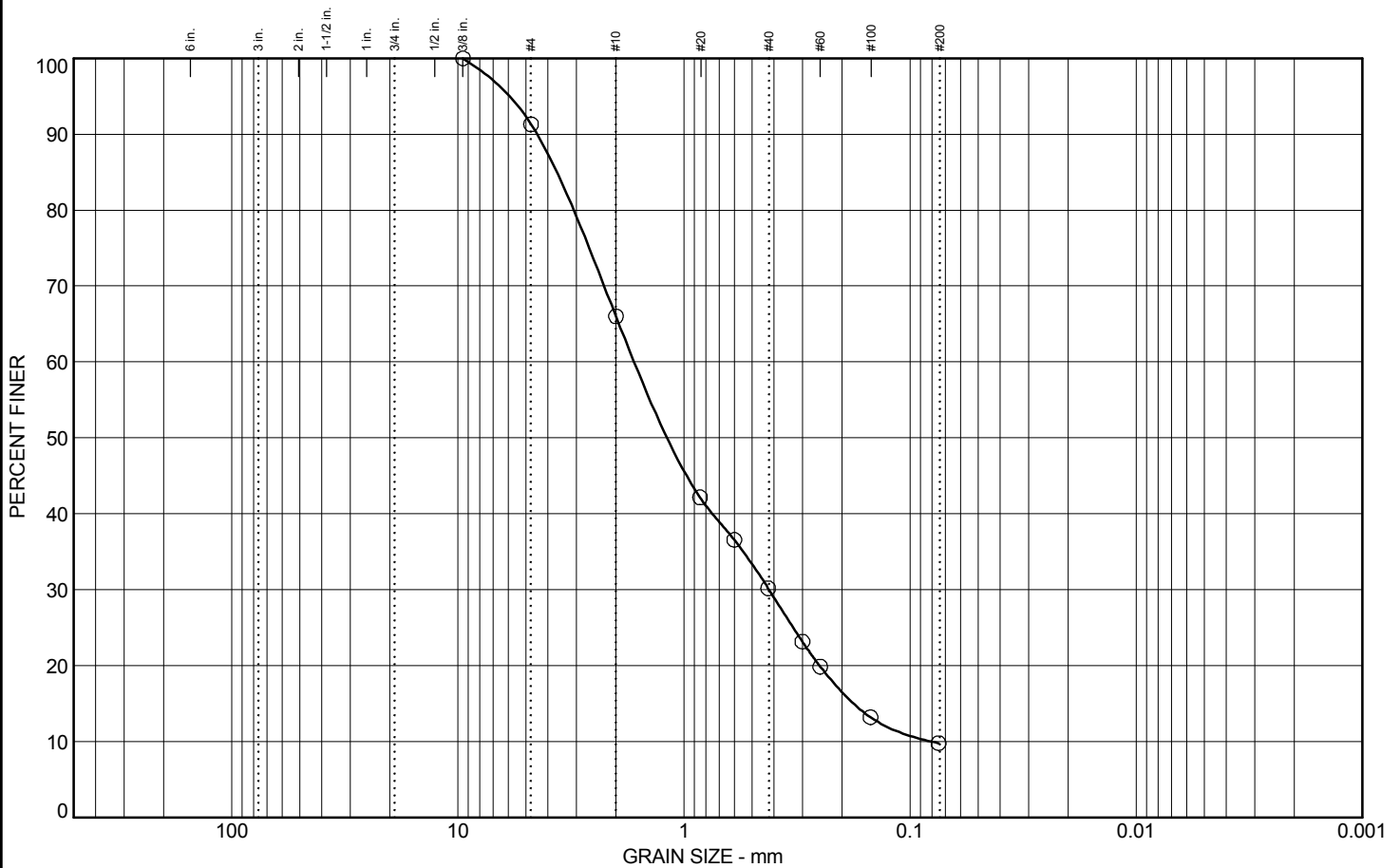
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	34.0	36.1	20.2	9.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	91.3		
2	66.0		
0.85	42.1		
0.6	36.5		
0.425	30.2		
0.3	23.1		
0.25	19.8		
0.15	13.2		
0.075	9.8		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt

General Characteristics

Moisture Content = 8.6%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 3.829$
 $D_{30} = 0.421$
 $C_u = 20.48$
 $D_{60} = 1.612$
 $D_{15} = 0.172$
 $C_c = 1.40$
 $D_{50} = 1.127$
 $D_{10} = 0.079$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 6

Location: -

Source of Sample: B-035

Date:

Depth / Elev: 9' / 723.29'



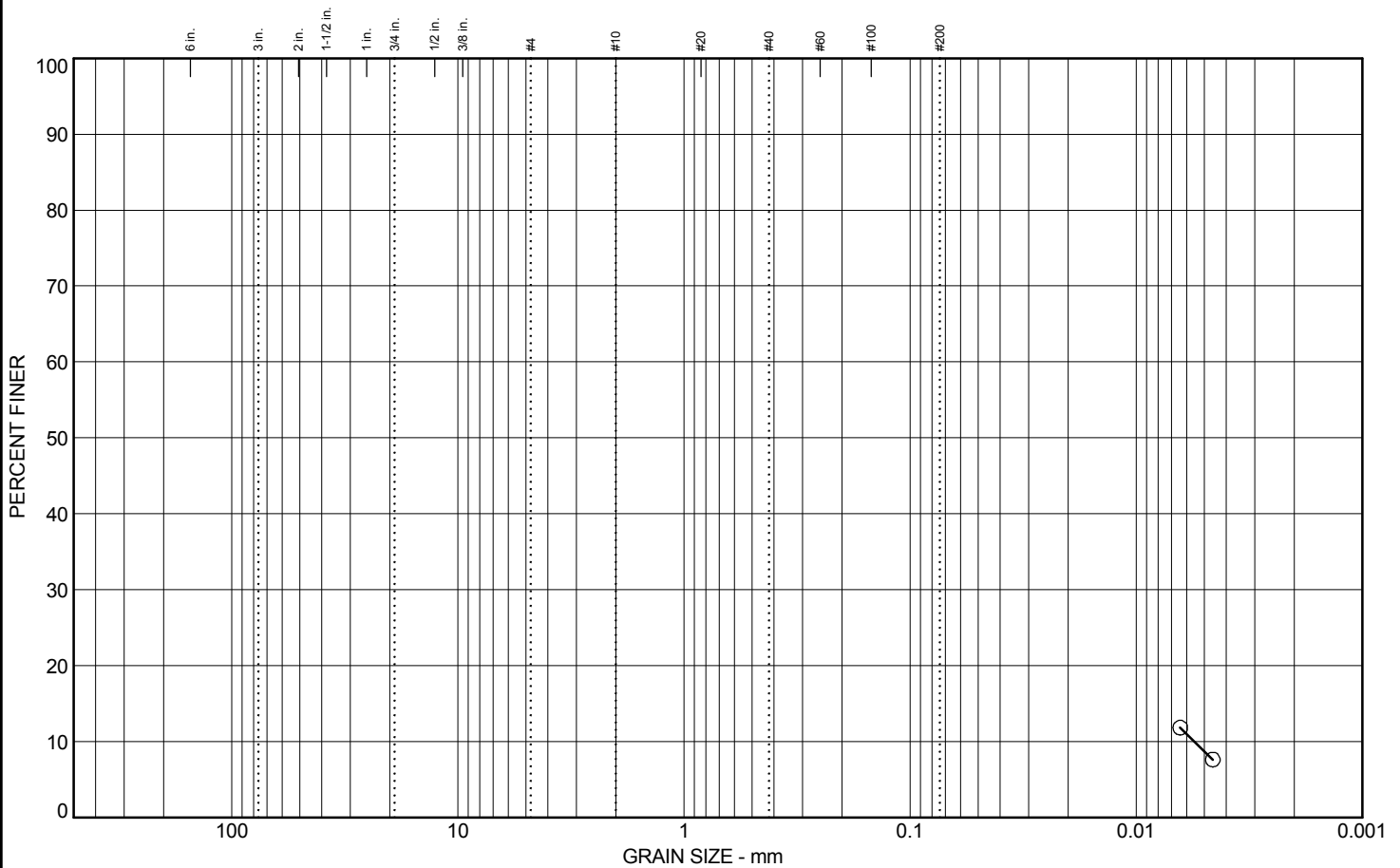
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
						8.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)

* SPECIFICATION :

Soil Description

General Characteristics

Moisture Content = 24.7%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

D_{85} =

D_{60} =

D_{50} =

D_{30} =

D_{15} =

D_{10} = 0.006

C_u =

C_c =

Classification

ODOT =

Remarks

Group Index =

Sample No.: 9

Source of Sample: B-035

Location: -

Date:

Depth / Elev: 15' / 717.29'



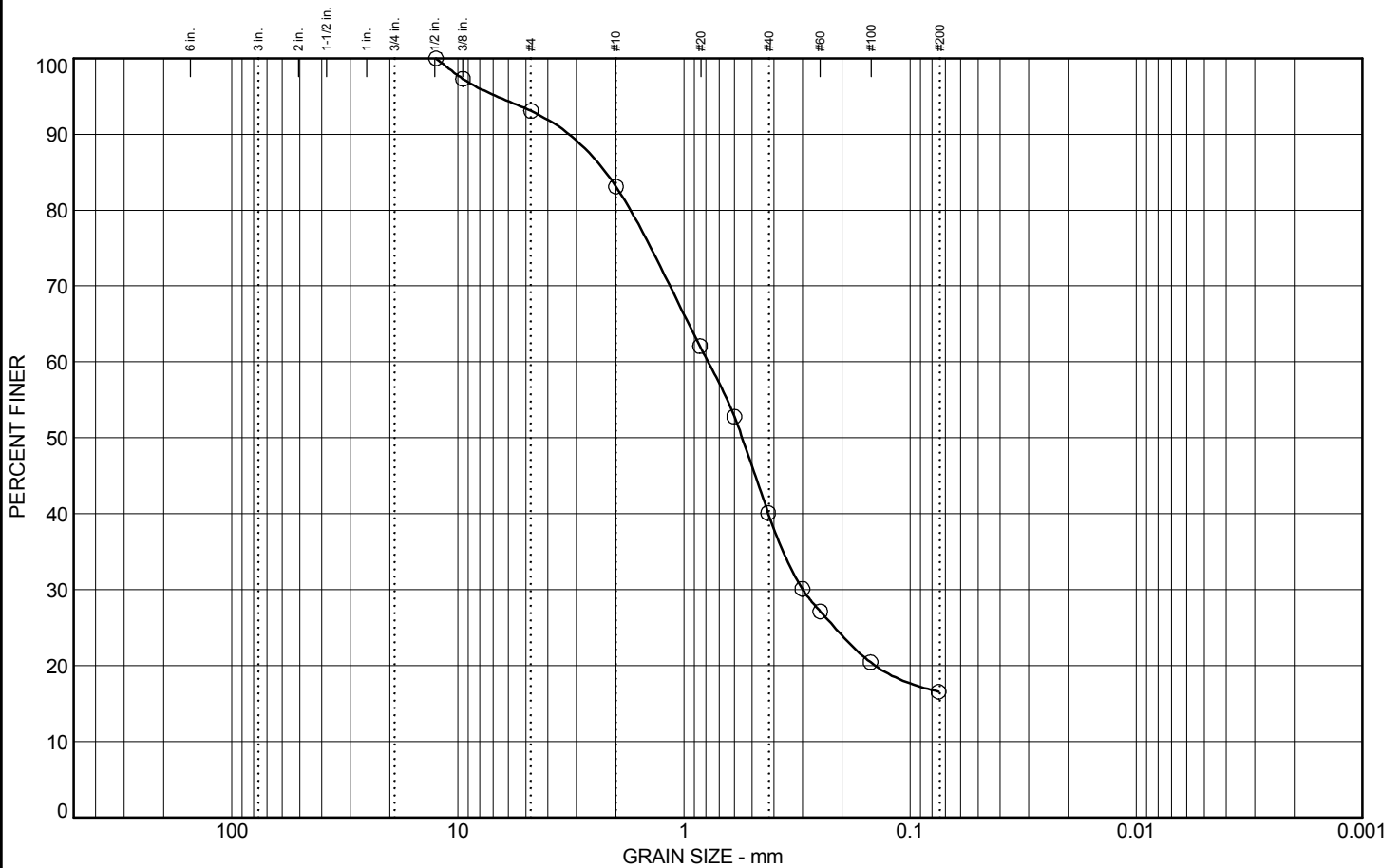
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	16.9	43.3	23.2	16.5	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	97.3		
4.75	93.1		
2	83.1		
0.85	62.1		
0.6	52.8		
0.425	40.1		
0.3	30.1		
0.25	27.1		
0.15	20.4		
0.075	16.5		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 5.6%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 2.36$

$D_{60} = 0.786$

$D_{50} = 0.556$

$D_{30} = 0.298$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 3

Source of Sample: B-036

Location: -

Date:

Depth / Elev: 5' / 729.67'



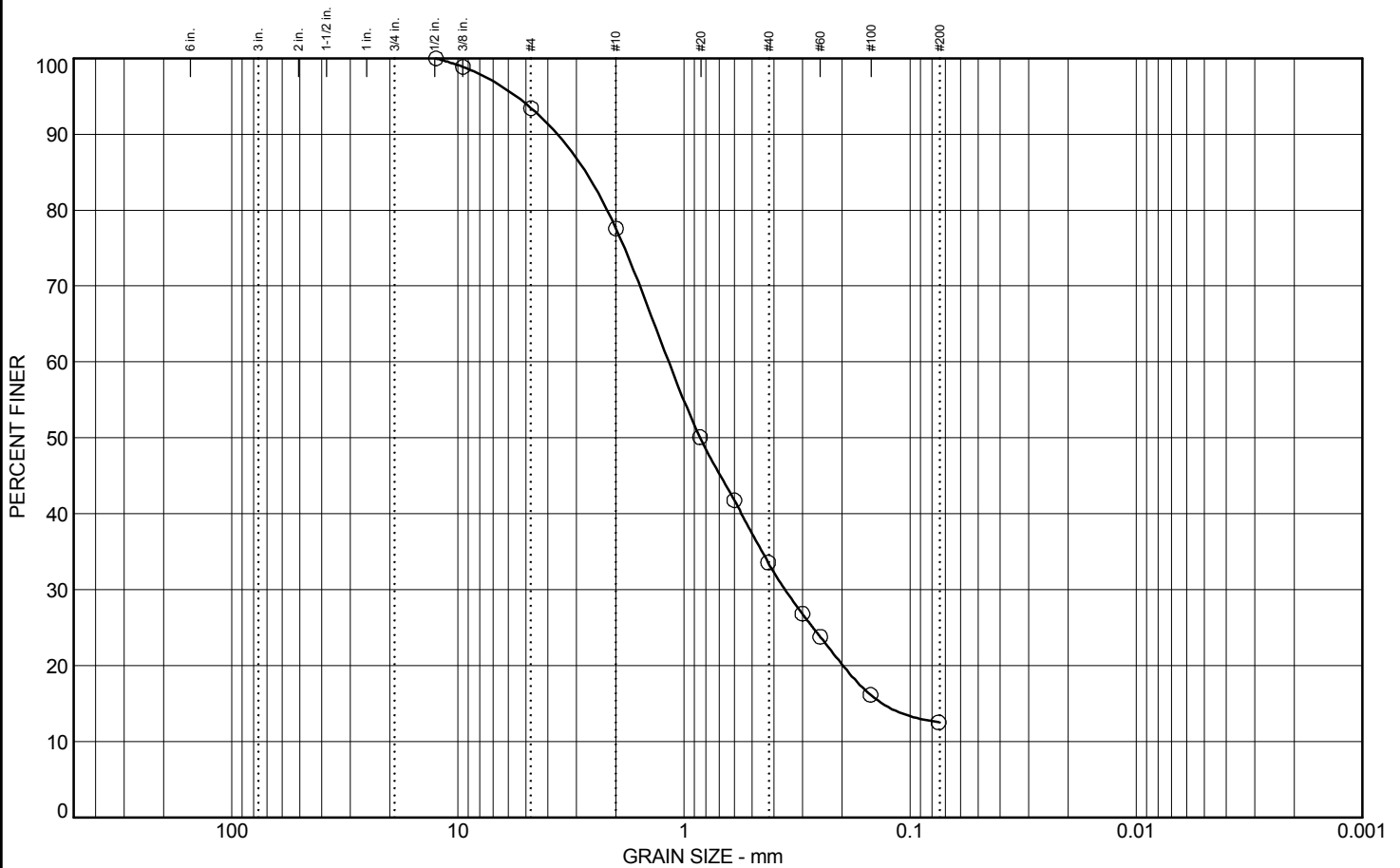
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	22.4	44.2	20.8	12.5	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	98.9		
4.75	93.4		
2	77.6		
0.85	50.1		
0.6	41.8		
0.425	33.6		
0.3	26.8		
0.25	23.8		
0.15	16.1		
0.075	12.5		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 5.1%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 2.999$

$D_{60} = 1.158$

$D_{50} = 0.847$

$D_{30} = 0.354$

$D_{15} = 0.121$

$D_{10} =$

$C_u = 24.85$

$C_c = 2.32$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 4

Source of Sample: B-036

Location: -

Date:

Depth / Elev: 6.5' / 728.17'



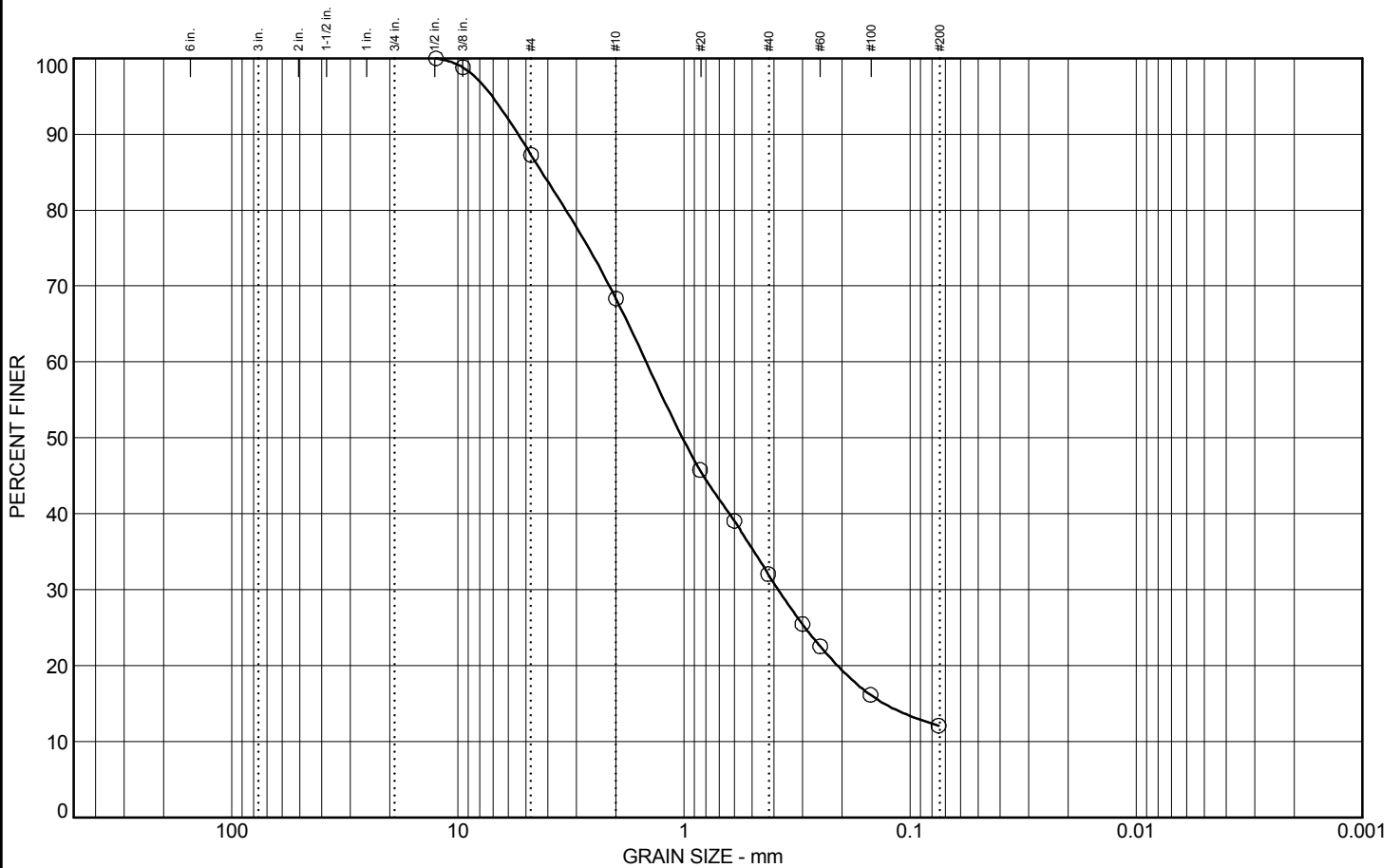
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	31.7	36.5	19.8	12.1	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	98.8		
4.75	87.3		
2	68.3		
0.85	45.8		
0.6	39.0		
0.425	32.0		
0.3	25.5		
0.25	22.5		
0.15	16.1		
0.075	12.1		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 4.7%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 4.282$

$D_{60} = 1.458$

$D_{50} = 0.998$

$D_{30} = 0.381$

$D_{15} = 0.124$

$D_{10} =$

$C_u = 27.67$

$C_c = 1.89$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 5

Source of Sample: B-036

Location: -

Date:

Depth / Elev: 8' / 726.67'



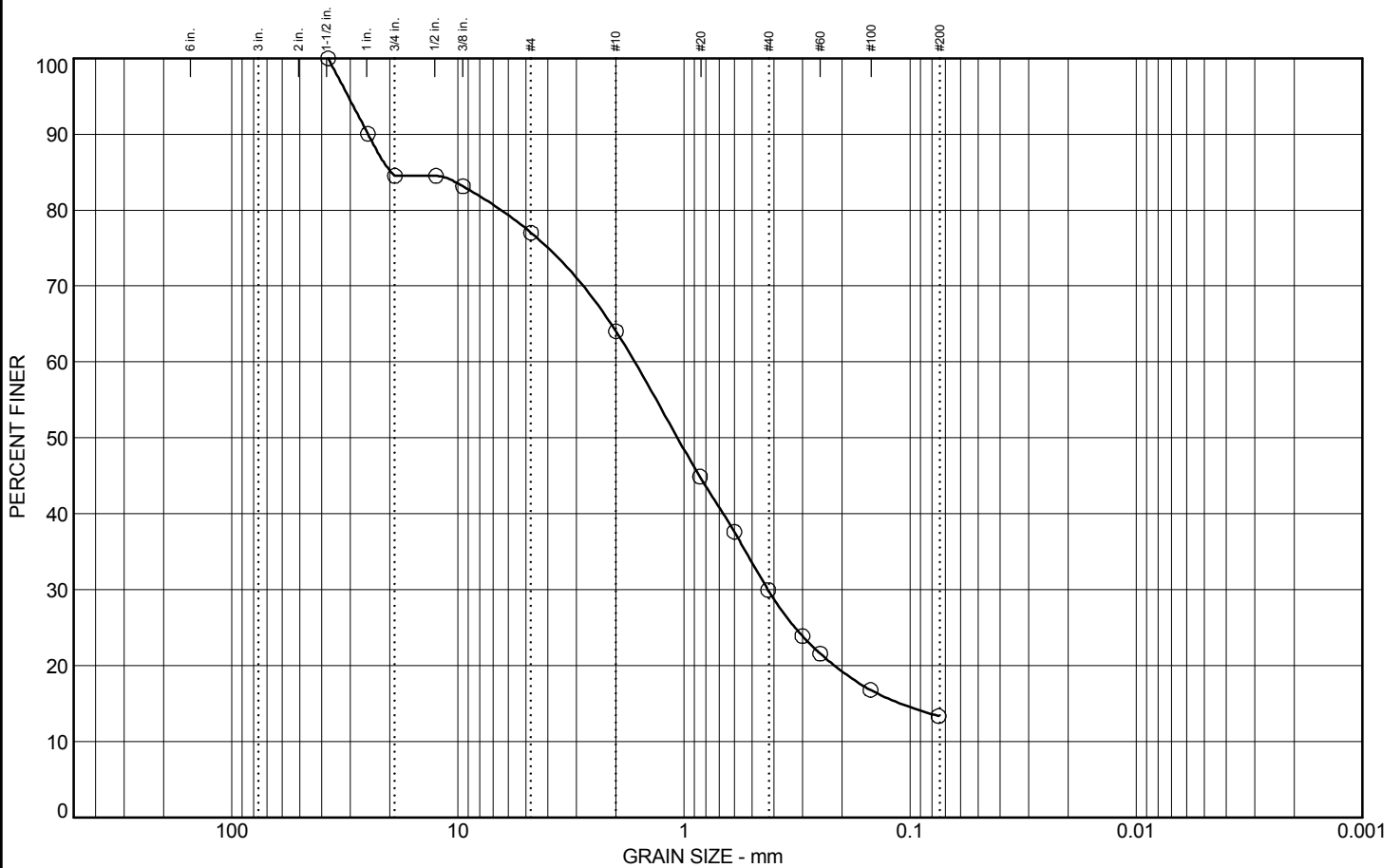
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	15.5	20.5	34.3	16.4	13.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
37.5	100.0		
25	90.1		
19	84.5		
12.5	84.5		
9.5	83.1		
4.75	77.0		
2	64.0		
0.85	44.9		
0.6	37.6		
0.425	29.9		
0.3	23.9		
0.25	21.6		
0.15	16.8		
0.075	13.3		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, coarse gravel

General Characteristics

Moisture Content = 5.4%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 19.463$

$D_{60} = 1.67$

$D_{50} = 1.069$

$D_{30} = 0.426$

$D_{15} = 0.105$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 6

Source of Sample: B-036

Location: -

Date:

Depth / Elev: 9.5' / 725.17'



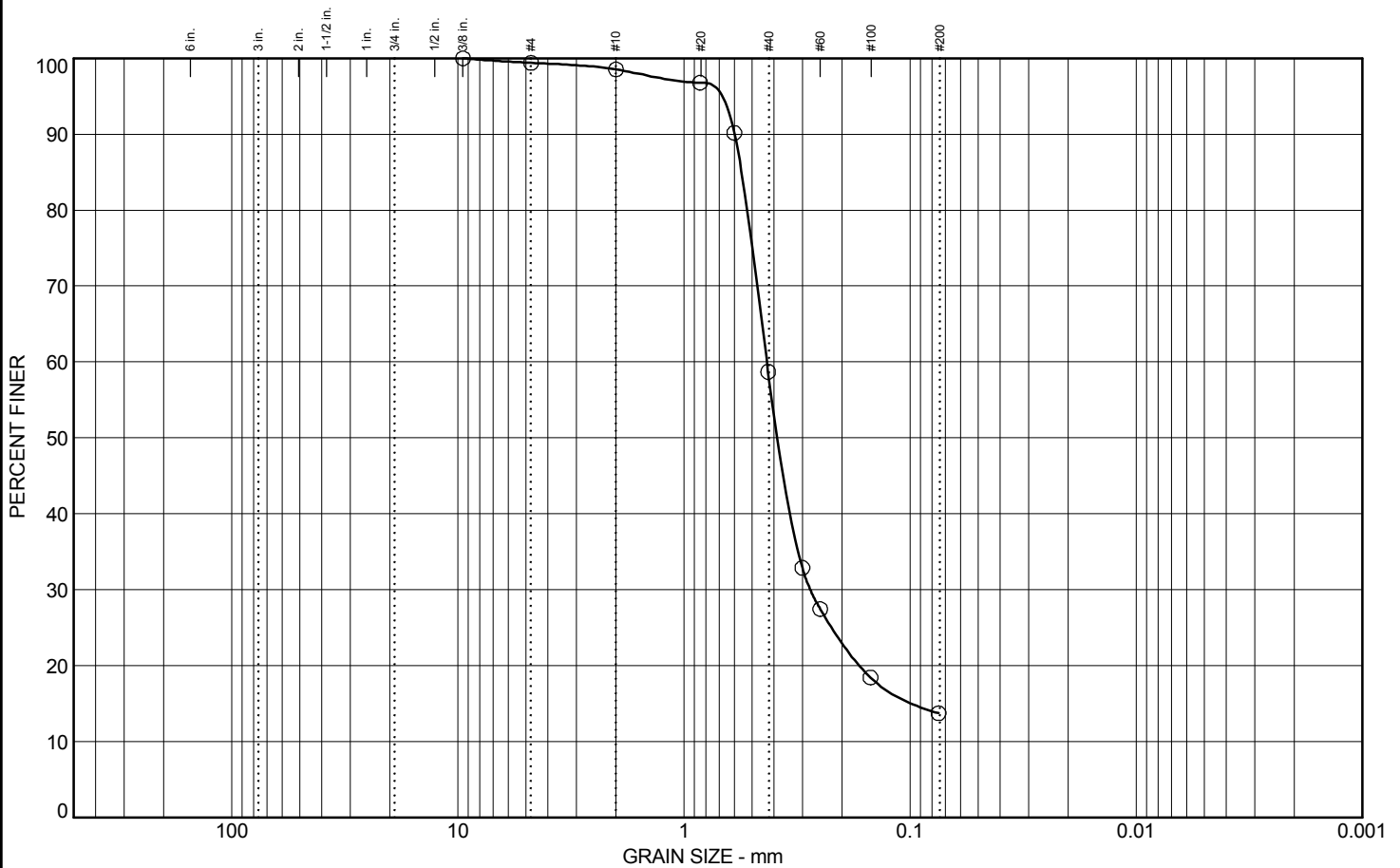
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	1.5	40.7	44.1	13.7	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	99.4		
2	98.5		
0.85	96.8		
0.6	90.2		
0.425	58.7		
0.3	32.9		
0.25	27.4		
0.15	18.4		
0.075	13.7		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 10.3%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 0.567$
 $D_{30} = 0.273$
 $C_u =$
 $D_{60} = 0.431$
 $D_{15} = 0.091$
 $C_c =$
 $D_{50} = 0.378$
 $D_{10} =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 7

Location: -

Source of Sample: B-036

Date:

Depth / Elev: 11' / 723.67'



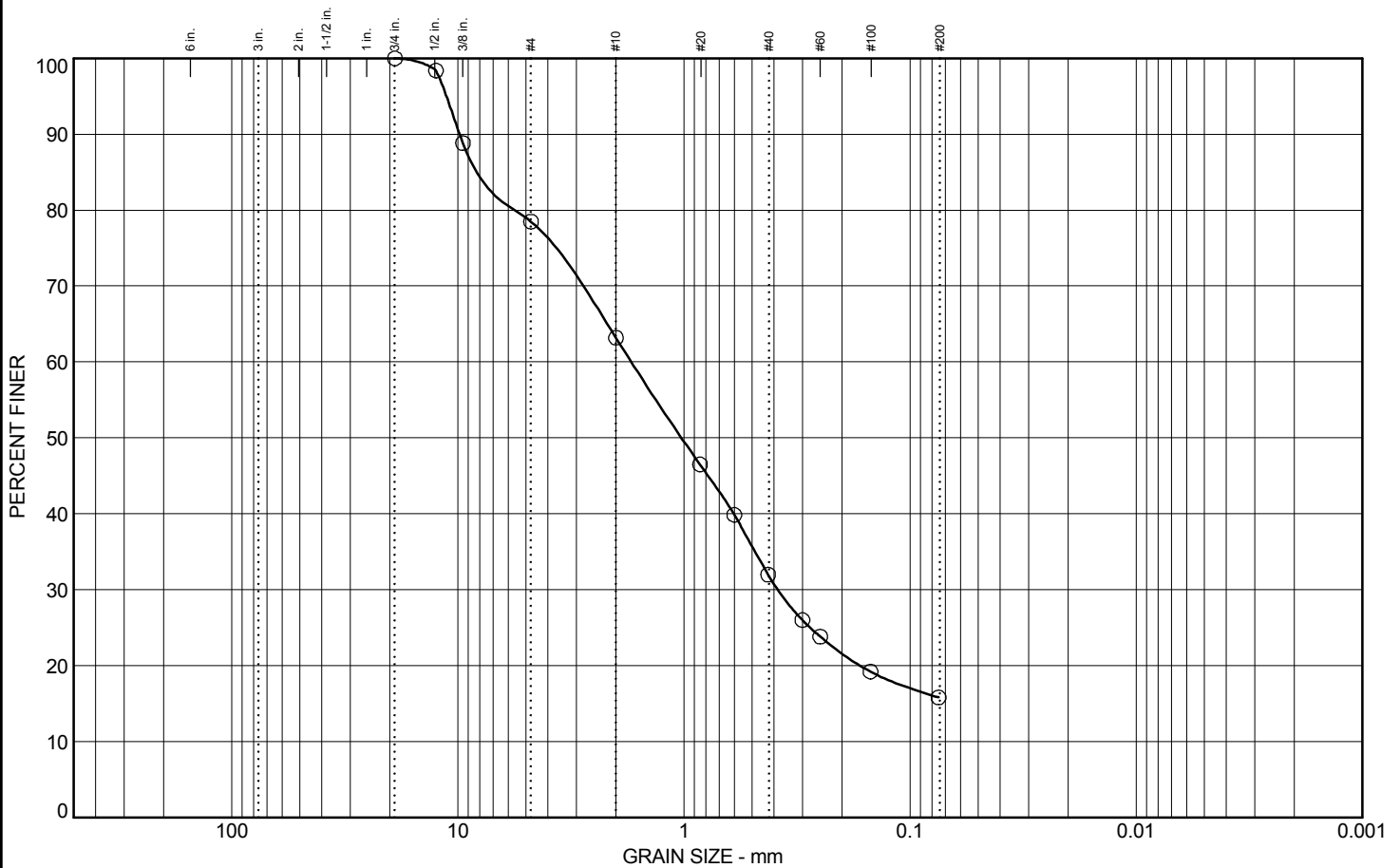
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	36.8	31.4	16.0	15.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	98.4		
9.5	88.8		
4.75	78.5		
2	63.2		
0.85	46.5		
0.6	39.8		
0.425	32.0		
0.3	26.0		
0.25	23.8		
0.15	19.2		
0.075	15.8		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 9.0%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 7.349$
 $D_{30} = 0.379$
 $C_u =$
 $D_{60} = 1.699$
 $D_{15} =$
 $C_c =$
 $D_{50} = 1.018$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 12

Location: -

Source of Sample: B-036

Date:

Depth / Elev: 18.5' / 716.17'



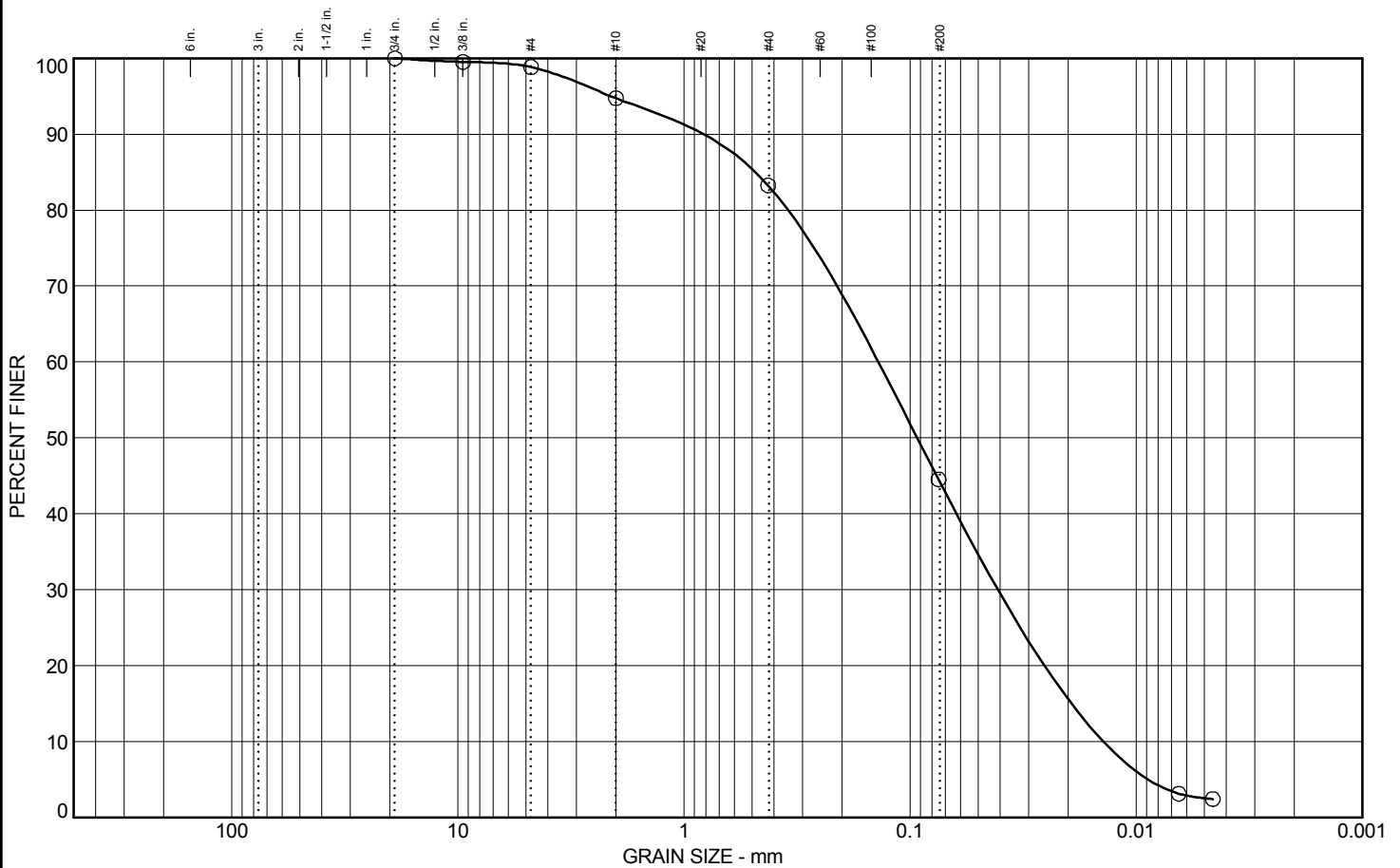
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	5.3	11.8	38.5	41.9	2.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.5		
4.75	98.8		
2	94.7		
0.425	83.3		
0.075	44.5		

* (no specification provided)

Soil Description

fine sand, low plasticity clay

General Characteristics

Moisture Content = 13.6%

Atterberg Limits

LL = 19

PL = 14

PI = 5

Coefficients

$D_{85} = 0.537$

$D_{60} = 0.15$

$D_{50} = 0.096$

$D_{30} = 0.032$

$D_{15} = 0.013$

$D_{10} = 0.01$

$C_u = 15.36$

$C_c = 0.69$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Sample No.: 16

Source of Sample: B-036

Location: -

Date:

Depth / Elev: 28.5' / 706.17'



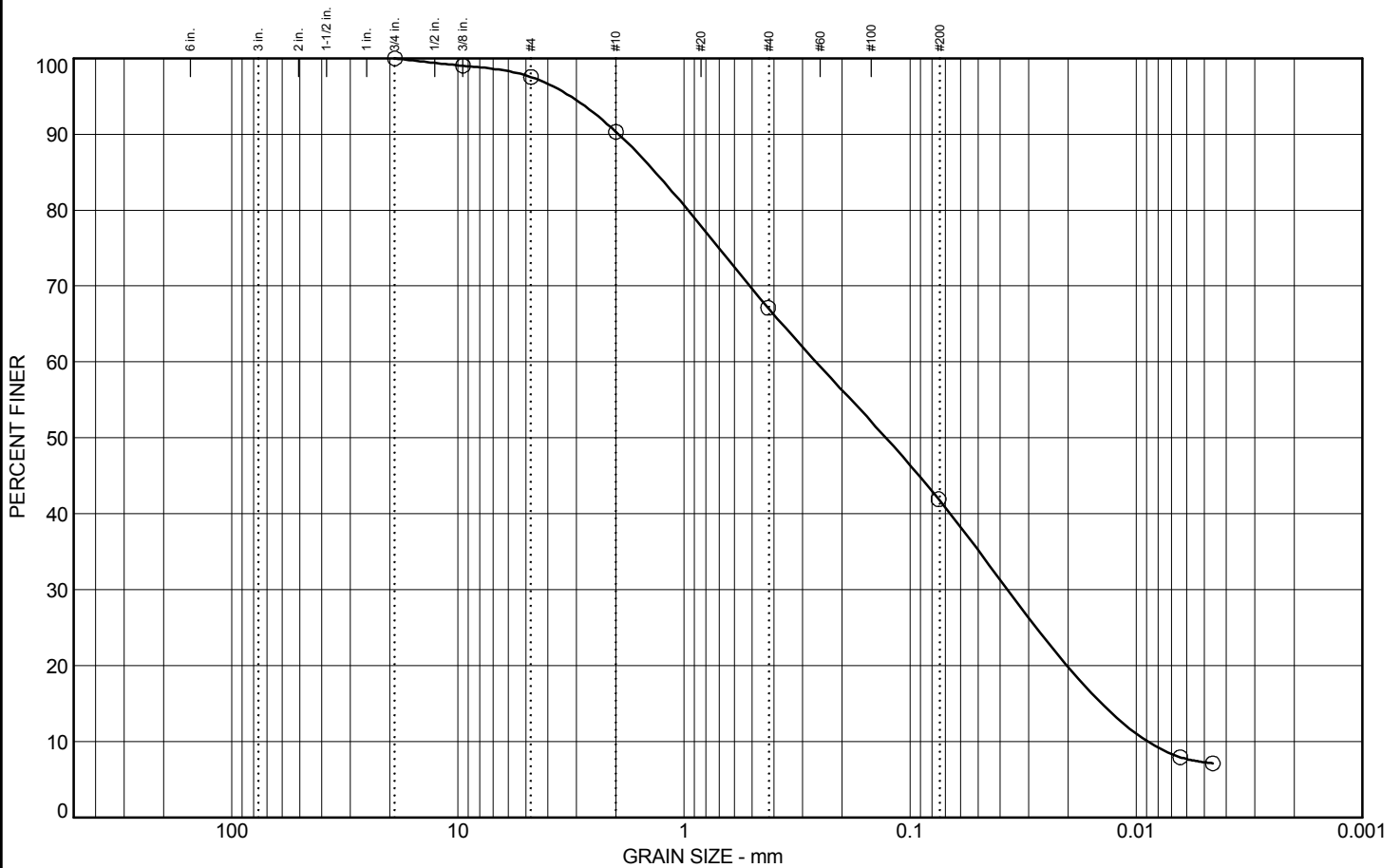
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.7	23.4	25.0	34.6	7.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.0		
4.75	97.5		
2	90.3		
0.425	67.1		
0.075	41.9		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity silt

General Characteristics

Moisture Content = 13.7%

Atterberg Limits

LL= 17

PL= 14

PI= 3

Coefficients

$D_{85} = 1.402$

$D_{60} = 0.26$

$D_{50} = 0.131$

$D_{30} = 0.032$

$D_{15} = 0.011$

$D_{10} = 0.007$

$C_u = 34.94$

$C_c = 0.52$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Sample No.: 17

Source of Sample: B-036

Location: -

Date:

Depth / Elev: 33.5' / 701.17'



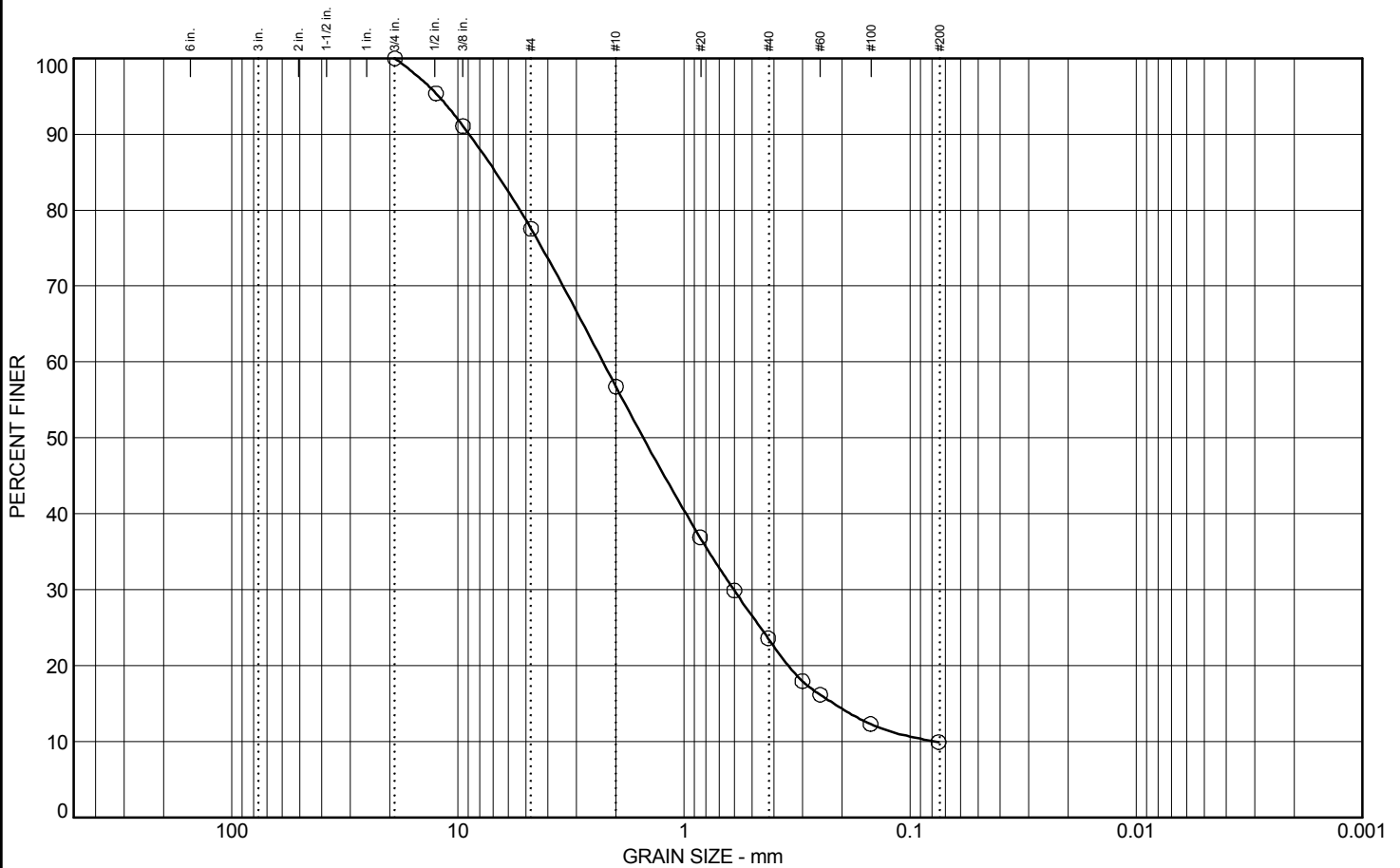
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	43.3	33.3	13.5	9.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	95.4		
9.5	91.1		
4.75	77.5		
2	56.7		
0.85	36.9		
0.6	29.9		
0.425	23.6		
0.3	17.9		
0.25	16.1		
0.15	12.3		
0.075	9.9		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 8.2%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 6.964$
 $D_{30} = 0.604$
 $C_u = 29.72$
 $D_{60} = 2.292$
 $D_{15} = 0.215$
 $C_c = 2.06$
 $D_{50} = 1.496$
 $D_{10} = 0.077$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 19

Location: -

Source of Sample: B-036

Date:

Depth / Elev: 43.5' / 691.17'



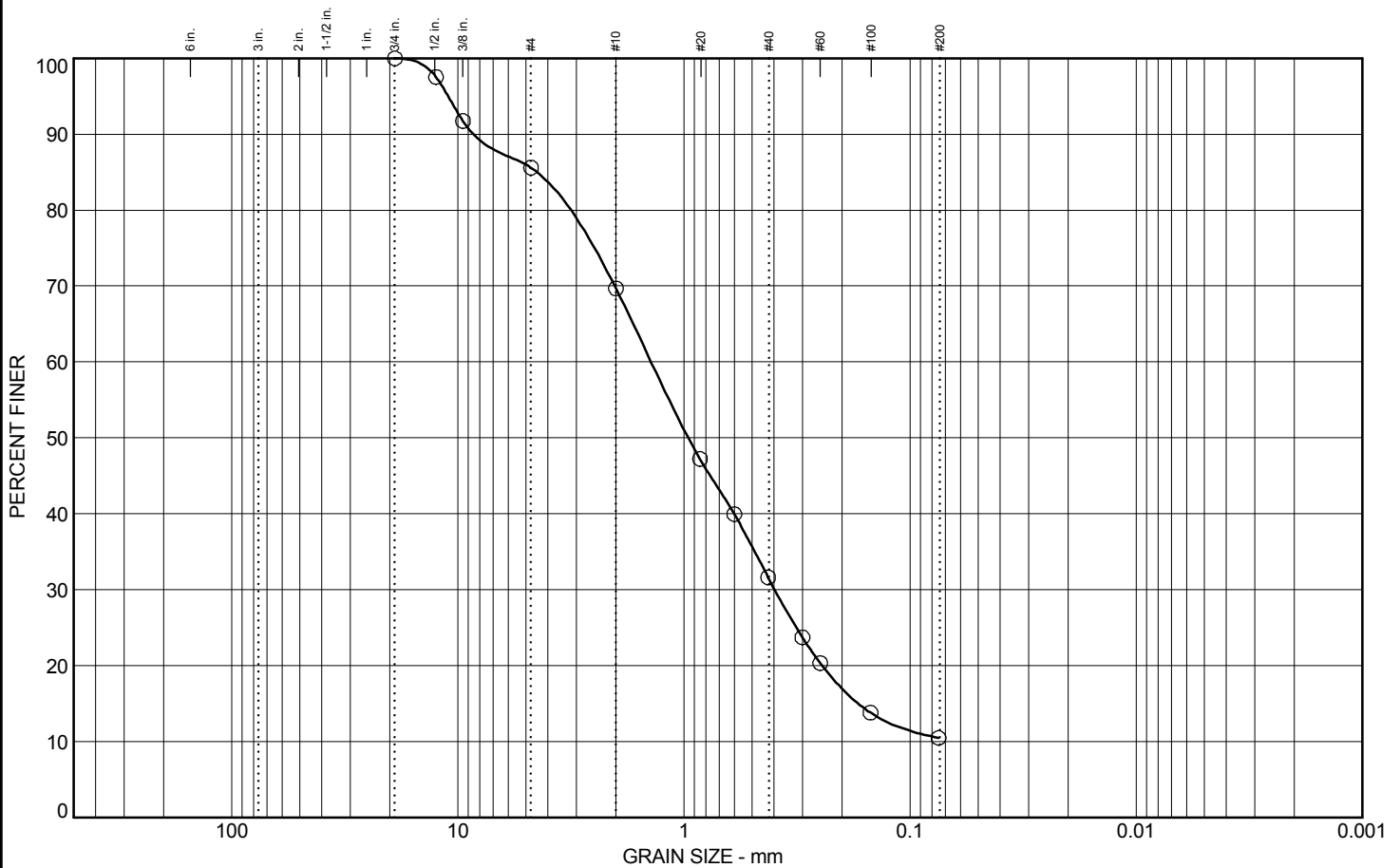
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	30.3	38.3	20.9	10.4	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	97.5		
9.5	91.7		
4.75	85.6		
2	69.7		
0.85	47.2		
0.6	39.9		
0.425	31.6		
0.3	23.7		
0.25	20.3		
0.15	13.8		
0.075	10.4		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 11.2%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 4.599$

$D_{60} = 1.383$

$D_{50} = 0.945$

$D_{30} = 0.396$

$D_{15} = 0.165$

$D_{10} =$

$C_u = 20.25$

$C_c = 1.66$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 22

Source of Sample: B-036

Location: -

Date:

Depth / Elev: 58.5' / 676.17'



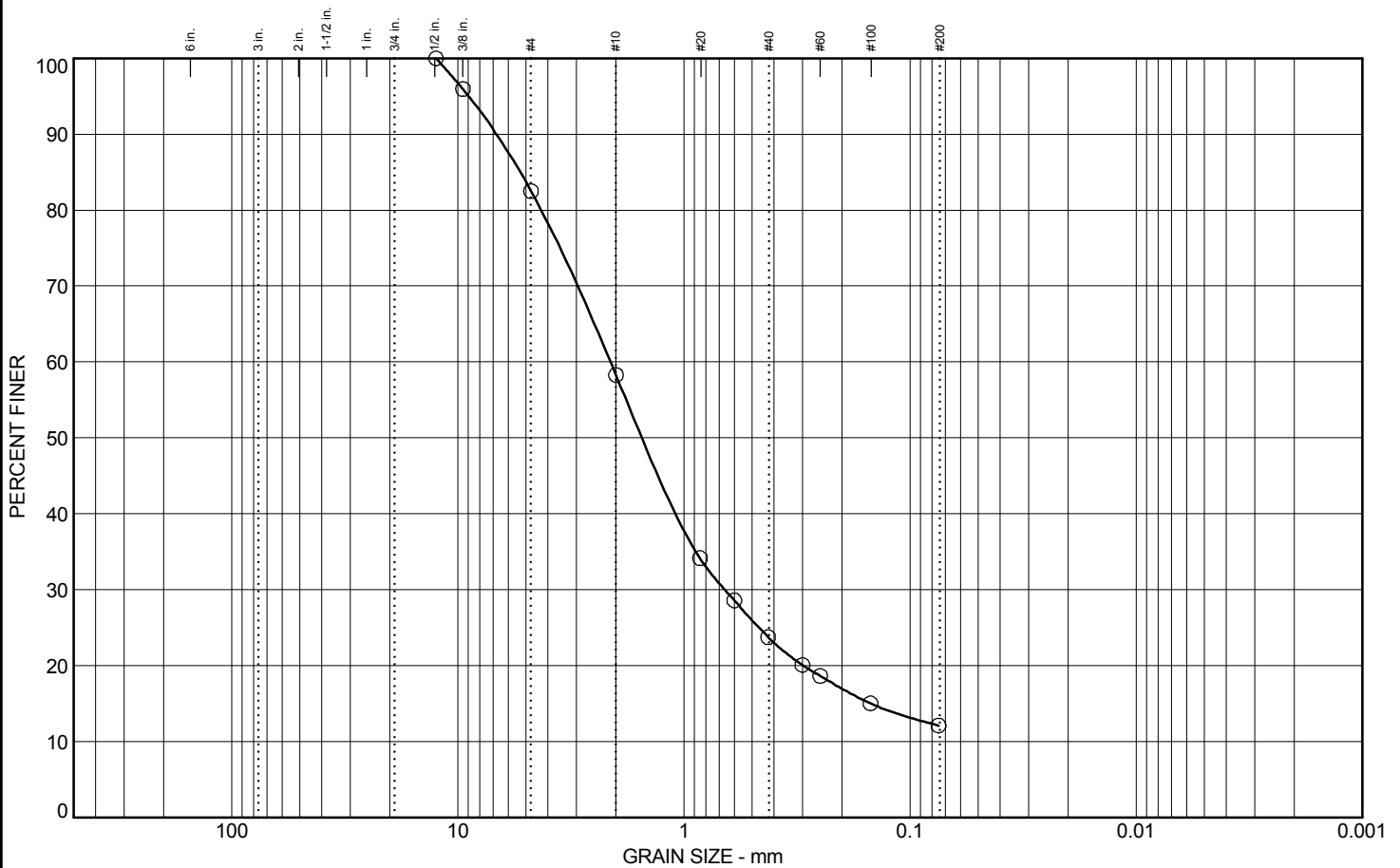
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	41.7	34.7	11.5	12.1	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	96.0		
4.75	82.5		
2	58.3		
0.85	34.1		
0.6	28.6		
0.425	23.7		
0.3	20.1		
0.25	18.6		
0.15	15.0		
0.075	12.1		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 6.2%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 5.404$
 $D_{30} = 0.656$
 $C_u = 46.51$
 $D_{60} = 2.127$
 $D_{15} = 0.15$
 $C_c = 4.42$
 $D_{50} = 1.491$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 27

Location: -

Source of Sample: B-036

Date:

Depth / Elev: 83.5' / 651.17'



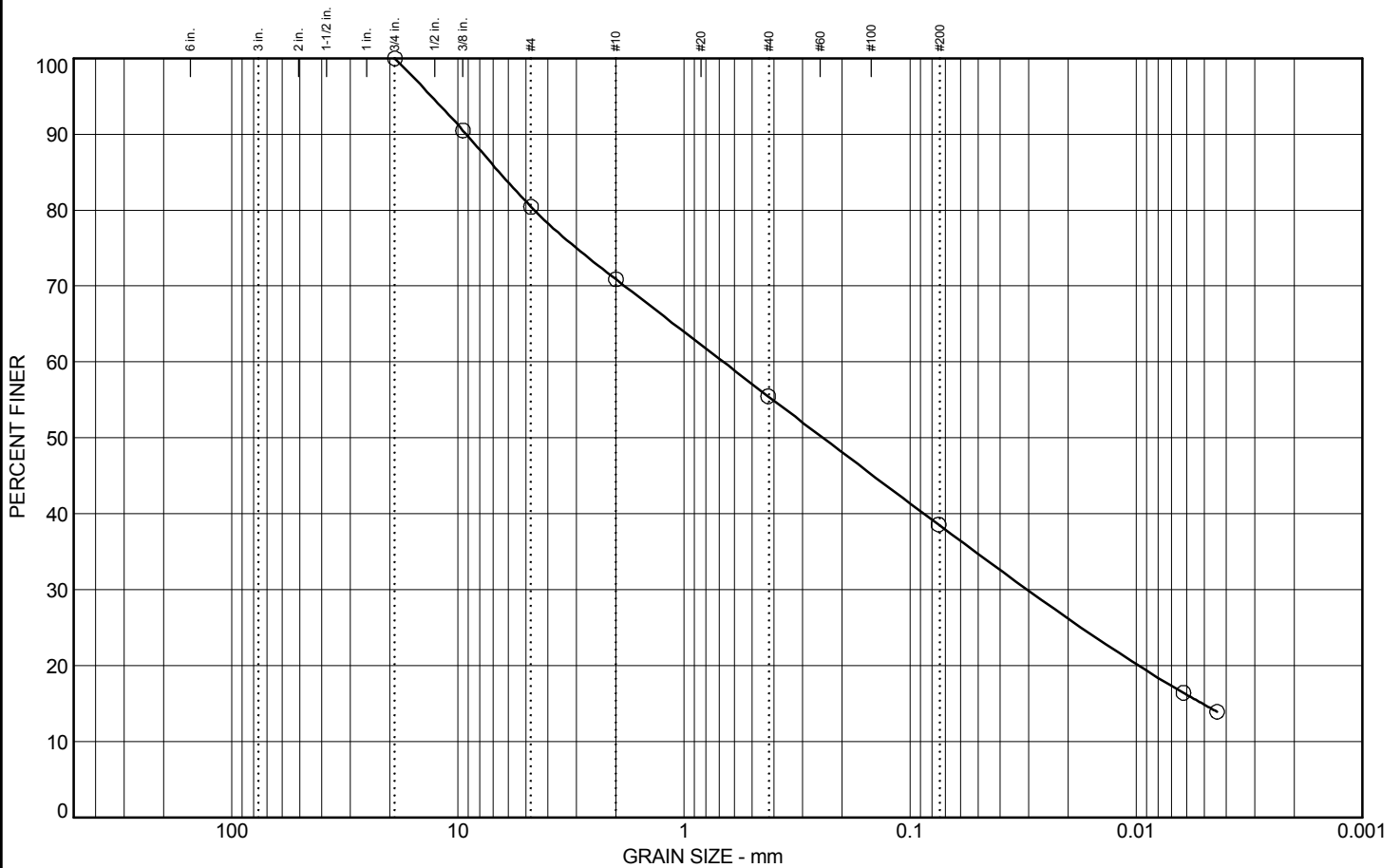
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	29.1	15.5	16.8	23.7	14.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	90.5		
4.75	80.4		
2	70.9		
0.425	55.5		
0.075	38.6		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 13.4%

Atterberg Limits

LL= 28

PL= 16

PI= 12

Coefficients

$D_{85} = 6.508$

$D_{60} = 0.67$

$D_{50} = 0.242$

$D_{30} = 0.029$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 1

Sample No.: 2

Source of Sample: B-037

Location: -

Date:

Depth / Elev: 3.5' / 745.64'



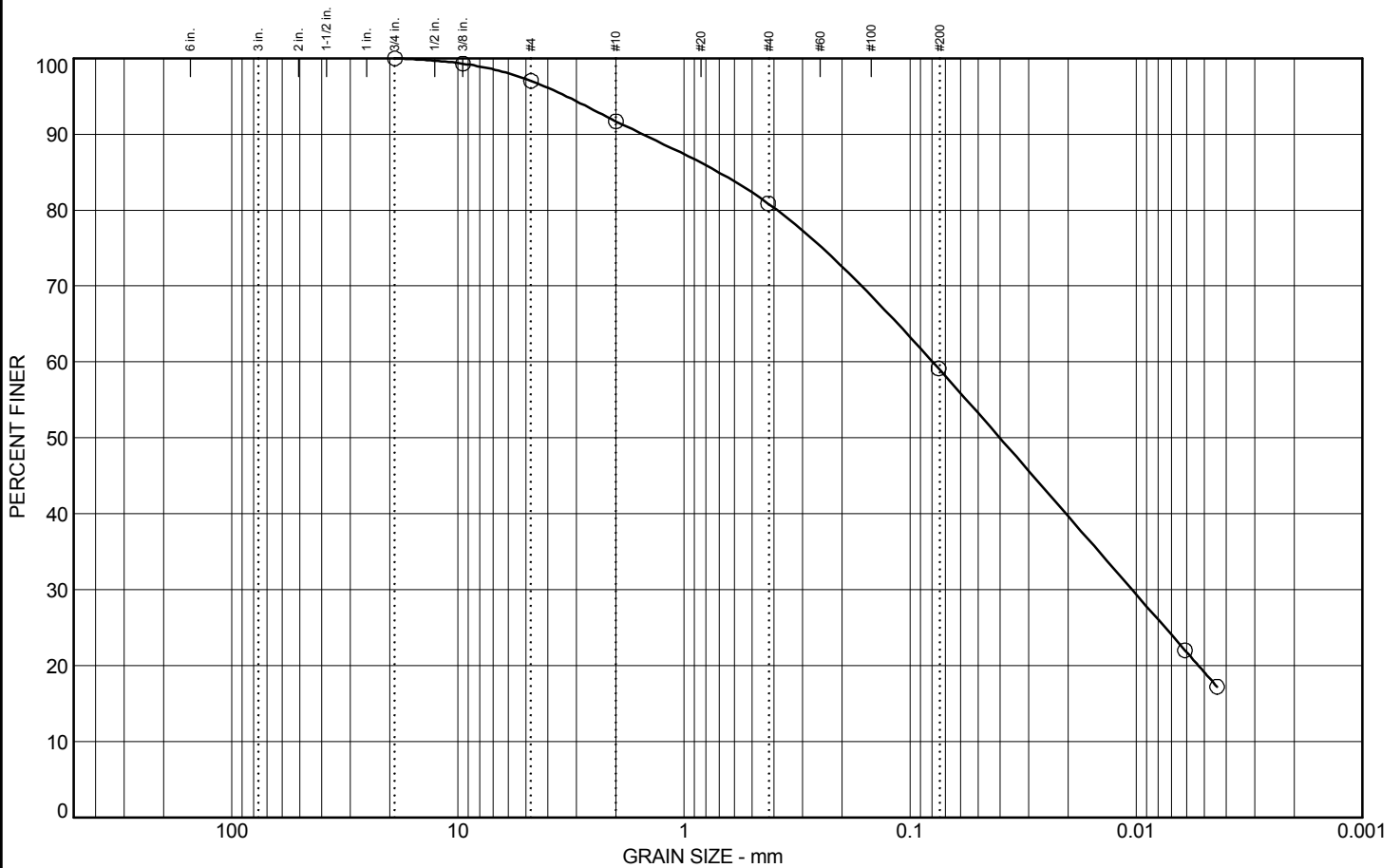
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.3	11.0	21.6	40.1	19.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.3		
4.75	97.0		
2	91.7		
0.425	80.9		
0.075	59.1		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 5.5%

Atterberg Limits

LL= 22

PL= 12

PI= 10

Coefficients

$D_{85} = 0.766$

$D_{60} = 0.08$

$D_{50} = 0.04$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 8

Source of Sample: B-037

Location: -

Date:

Depth / Elev: 18.5' / 730.64'



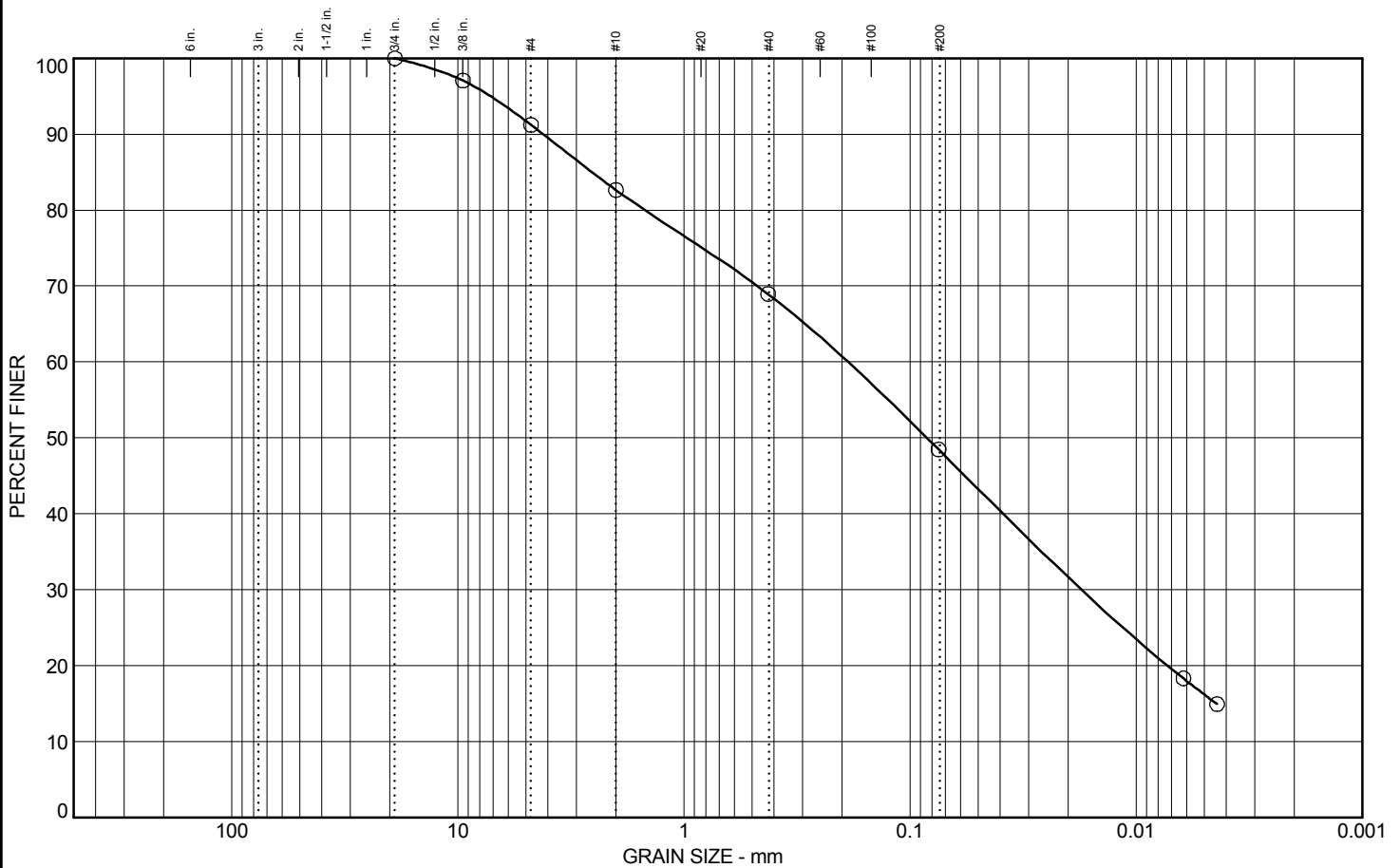
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	17.4	13.8	20.3	32.3	16.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	97.1		
4.75	91.2		
2	82.6		
0.425	69.0		
0.075	48.5		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 12.7%

Atterberg Limits

LL= 26

PL= 14

PI= 12

Coefficients

$D_{85} = 2.536$

$D_{60} = 0.199$

$D_{50} = 0.085$

$D_{30} = 0.016$

$D_{15} = 0.004$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 3

Sample No.: 9

Source of Sample: B-037

Location: -

Date:

Depth / Elev: 20' / 729.14'



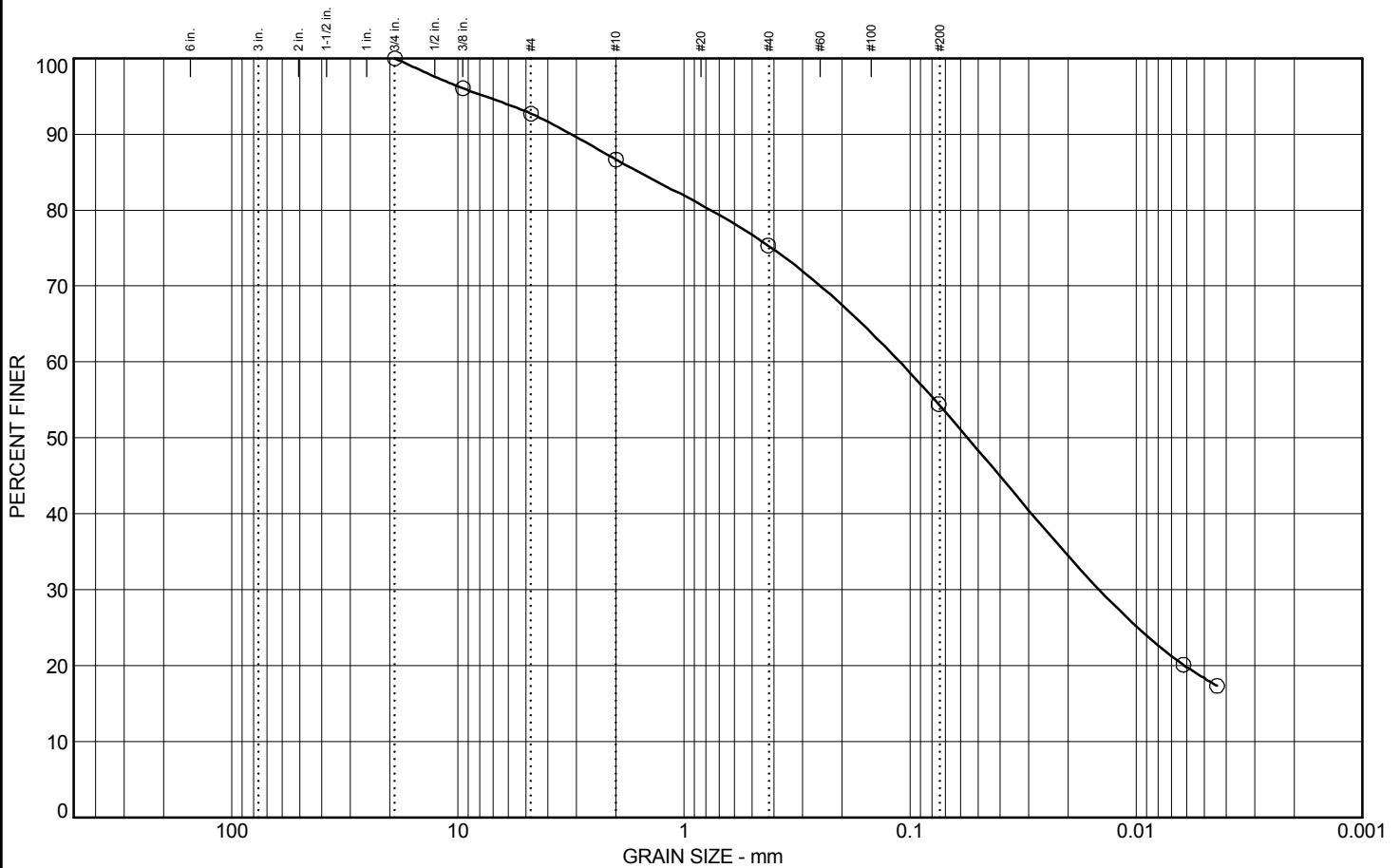
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	13.3	11.5	20.7	36.1	18.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.1		
4.75	92.7		
2	86.7		
0.425	75.3		
0.075	54.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.1%

Atterberg Limits

LL= 27

PL= 15

PI= 12

Coefficients

$D_{85} = 1.593$

$D_{60} = 0.119$

$D_{50} = 0.054$

$D_{30} = 0.013$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 5

Sample No.: 10

Source of Sample: B-037

Location: -

Date:

Depth / Elev: 21.5' / 727.64'



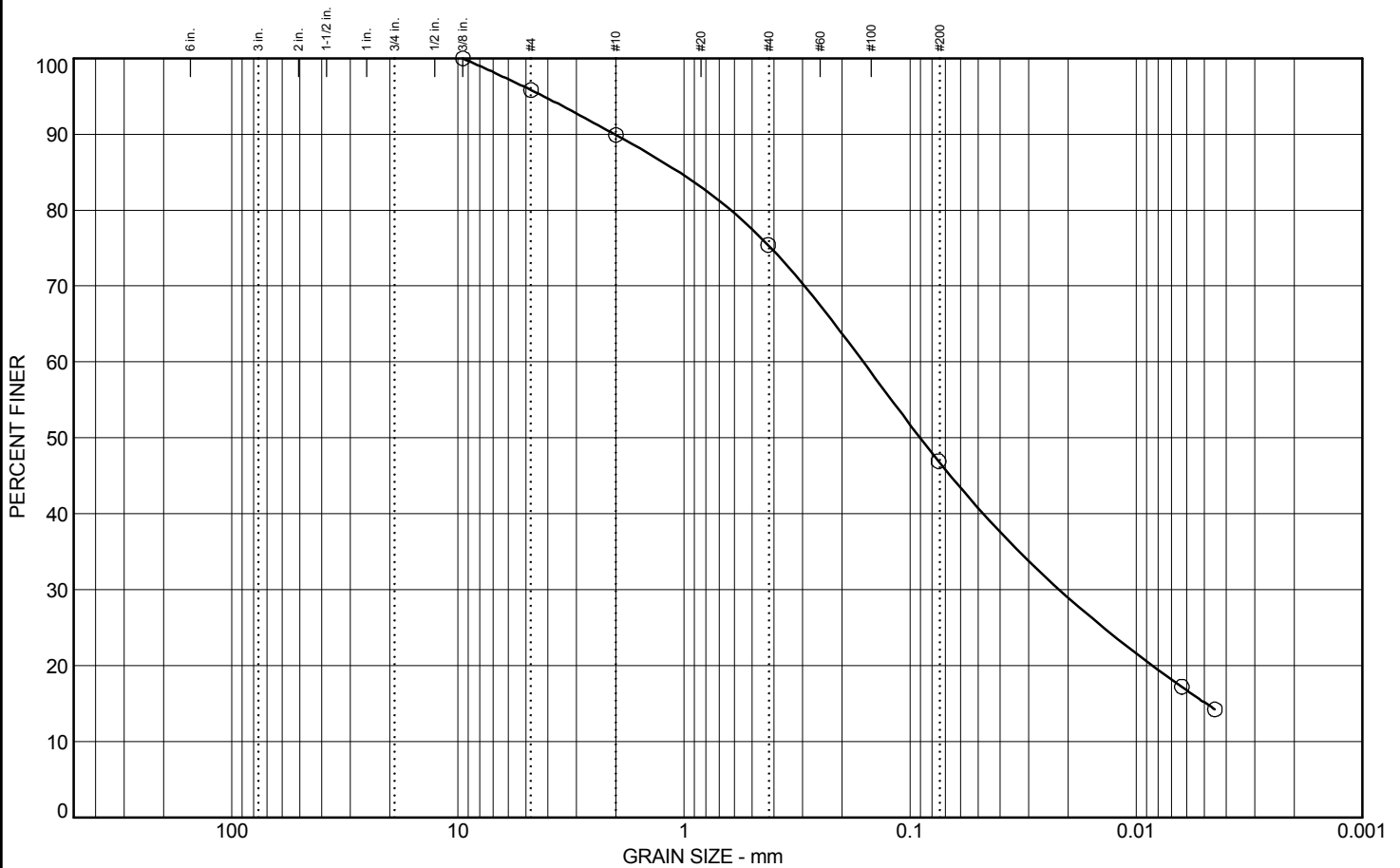
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.1	14.7	28.3	31.8	15.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	95.8		
2	89.9		
0.425	75.4		
0.075	46.9		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 9.8%

Atterberg Limits

LL= 20

PL= 12

PI= 8

Coefficients

$D_{85} = 1.184$

$D_{60} = 0.166$

$D_{50} = 0.091$

$D_{30} = 0.018$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 11

Source of Sample: B-037

Location: -

Date:

Depth / Elev: 23' / 726.14'



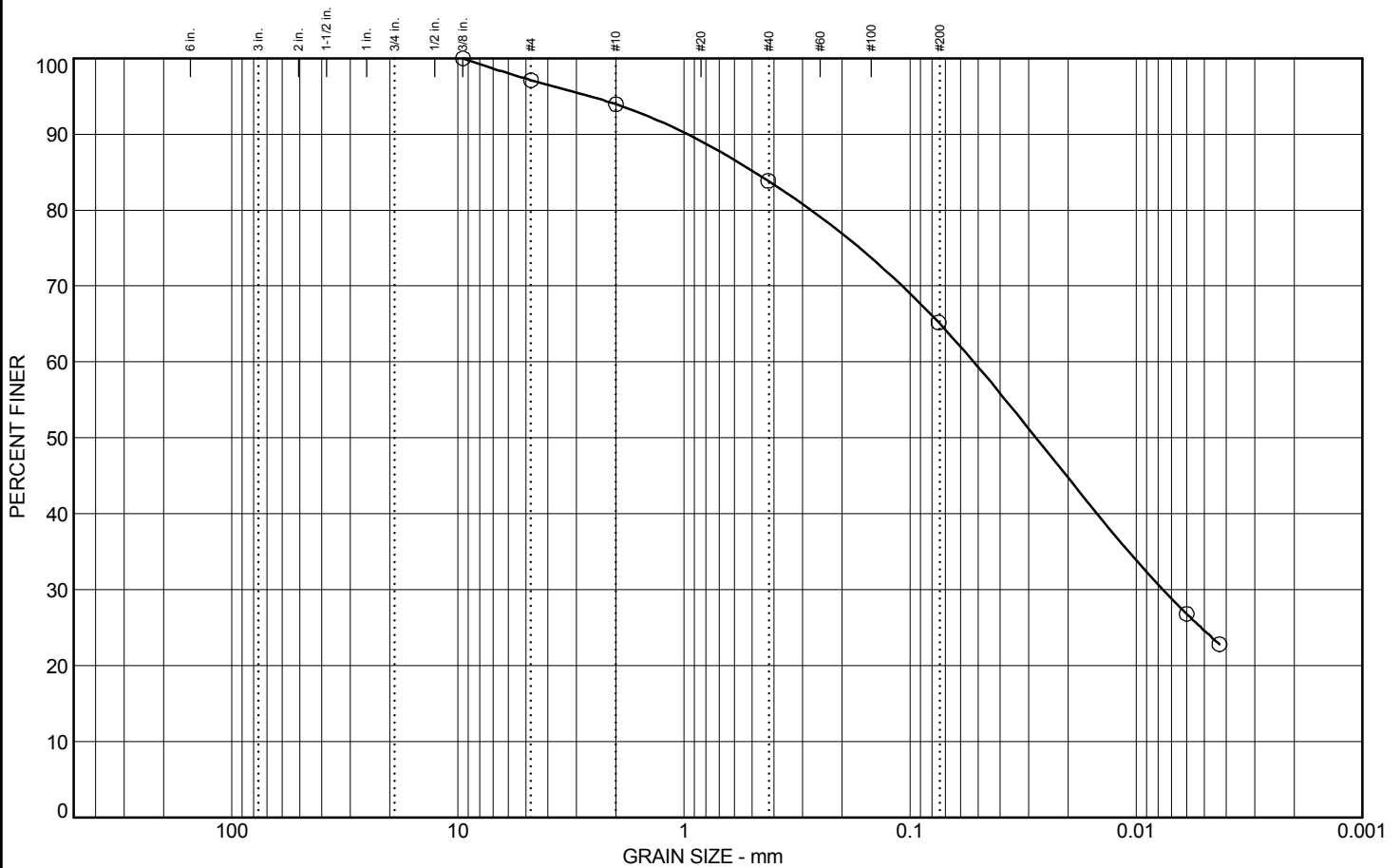
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.0	10.2	18.5	40.6	24.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	97.1		
2	94.0		
0.425	83.9		
0.075	65.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.5%

Atterberg Limits

LL = 27

PL = 15

PI = 12

Coefficients

$D_{85} = 0.506$

$D_{60} = 0.053$

$D_{50} = 0.028$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 7

Sample No.: 15

Source of Sample: B-037

Location: -

Date:

Depth / Elev: 31' / 718.14'



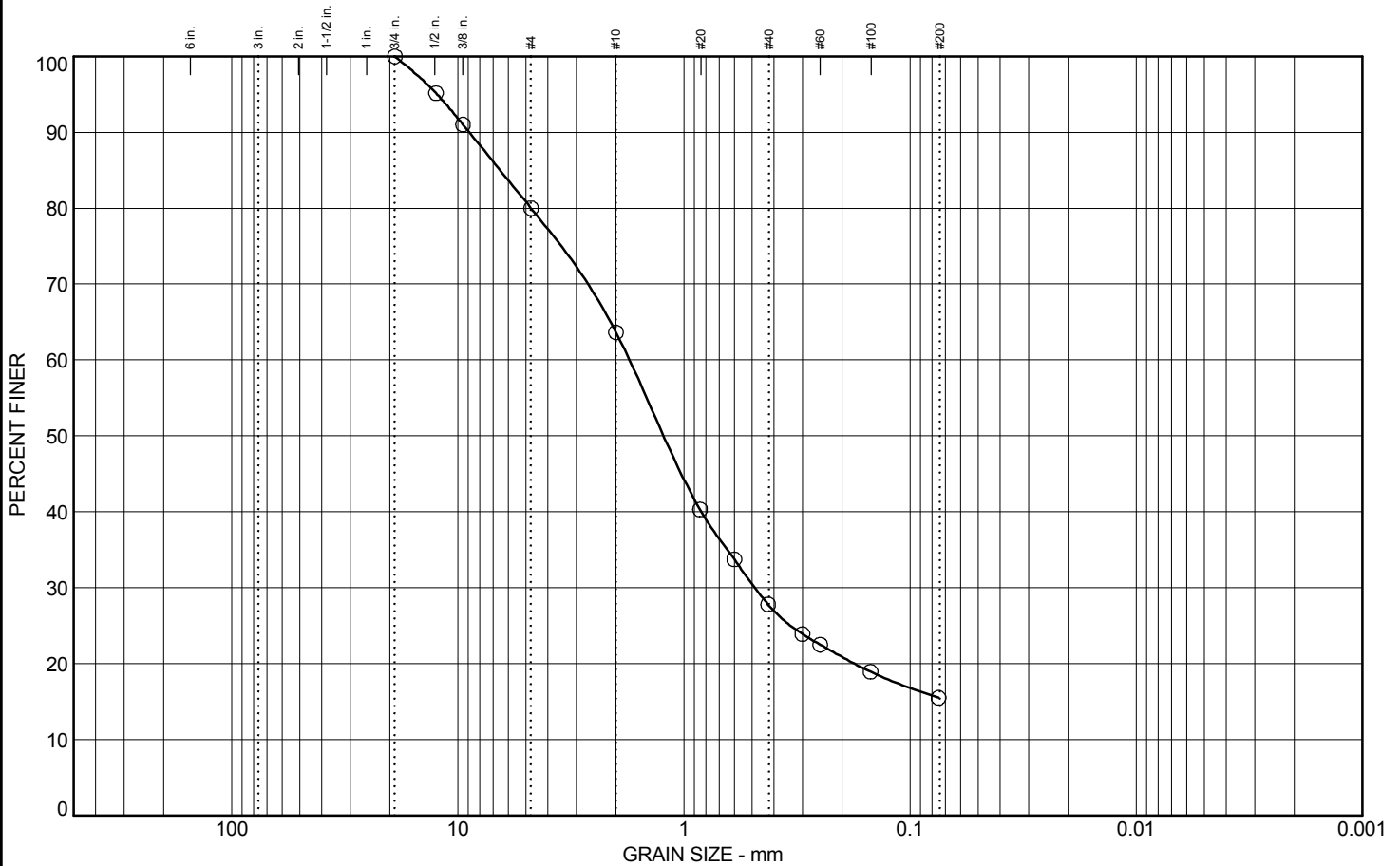
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	36.4	36.0	12.2	15.5	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	95.2		
9.5	91.0		
4.75	80.0		
2	63.6		
0.85	40.3		
0.6	33.7		
0.425	27.8		
0.3	23.9		
0.25	22.5		
0.15	18.9		
0.075	15.5		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 8.5%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 6.507$
 $D_{30} = 0.483$
 $C_u =$
 $D_{60} = 1.75$
 $D_{15} =$
 $C_c =$
 $D_{50} = 1.213$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 16

Location: -

Source of Sample: B-037

Date:

Depth / Elev: 33.5' / 715.64'



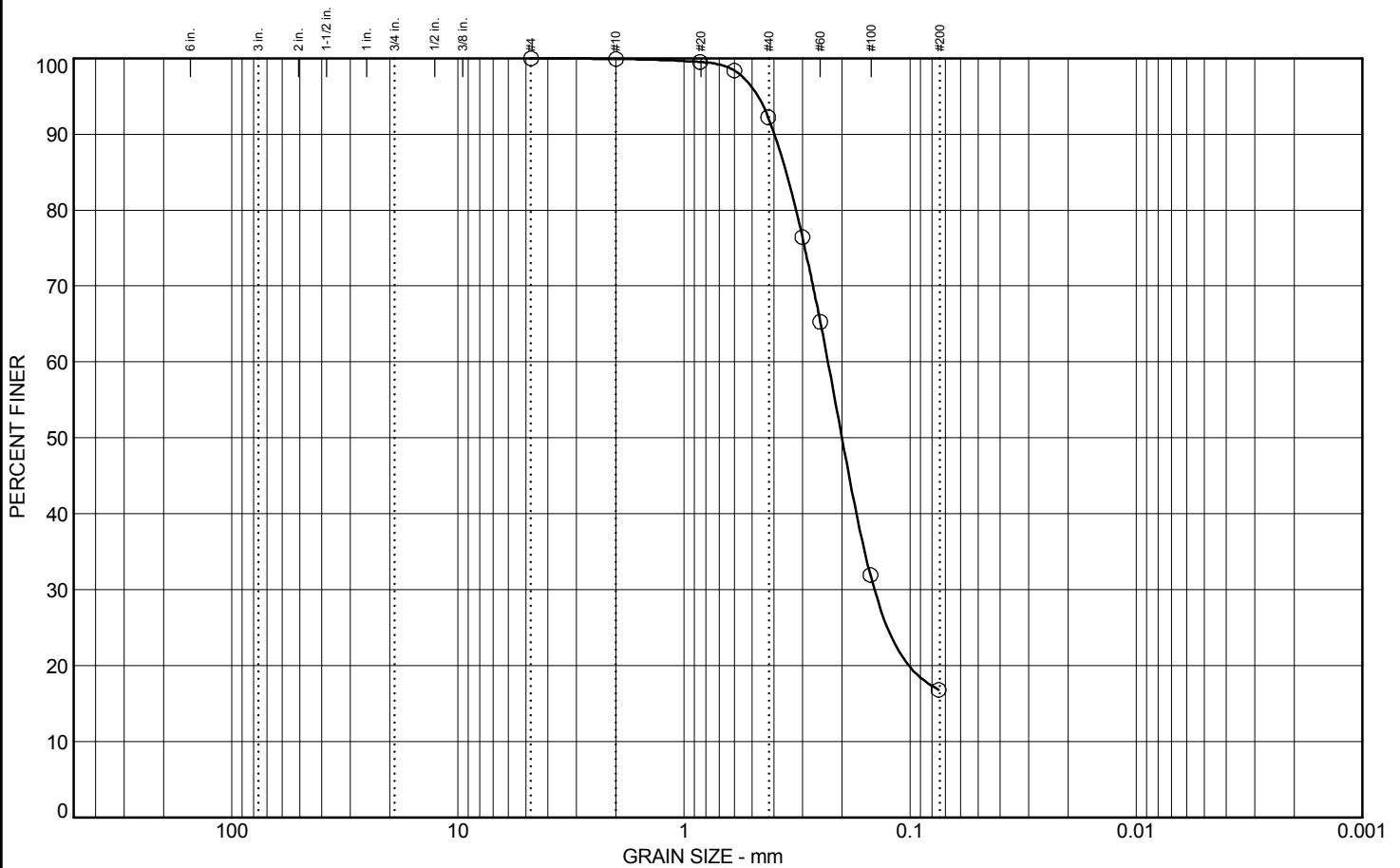
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.1	8.2	74.9	16.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	99.9		
0.85	99.5		
0.6	98.4		
0.425	92.2		
0.3	76.4		
0.25	65.3		
0.15	31.9		
0.075	16.8		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 13.1%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 0.362$
 $D_{30} = 0.137$
 $C_u =$
 $D_{60} = 0.231$
 $D_{15} =$
 $C_c =$
 $D_{50} = 0.198$
 $D_{10} =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 20

Location: -

Source of Sample: B-037

Date:

Depth / Elev: 43.5' / 705.64'



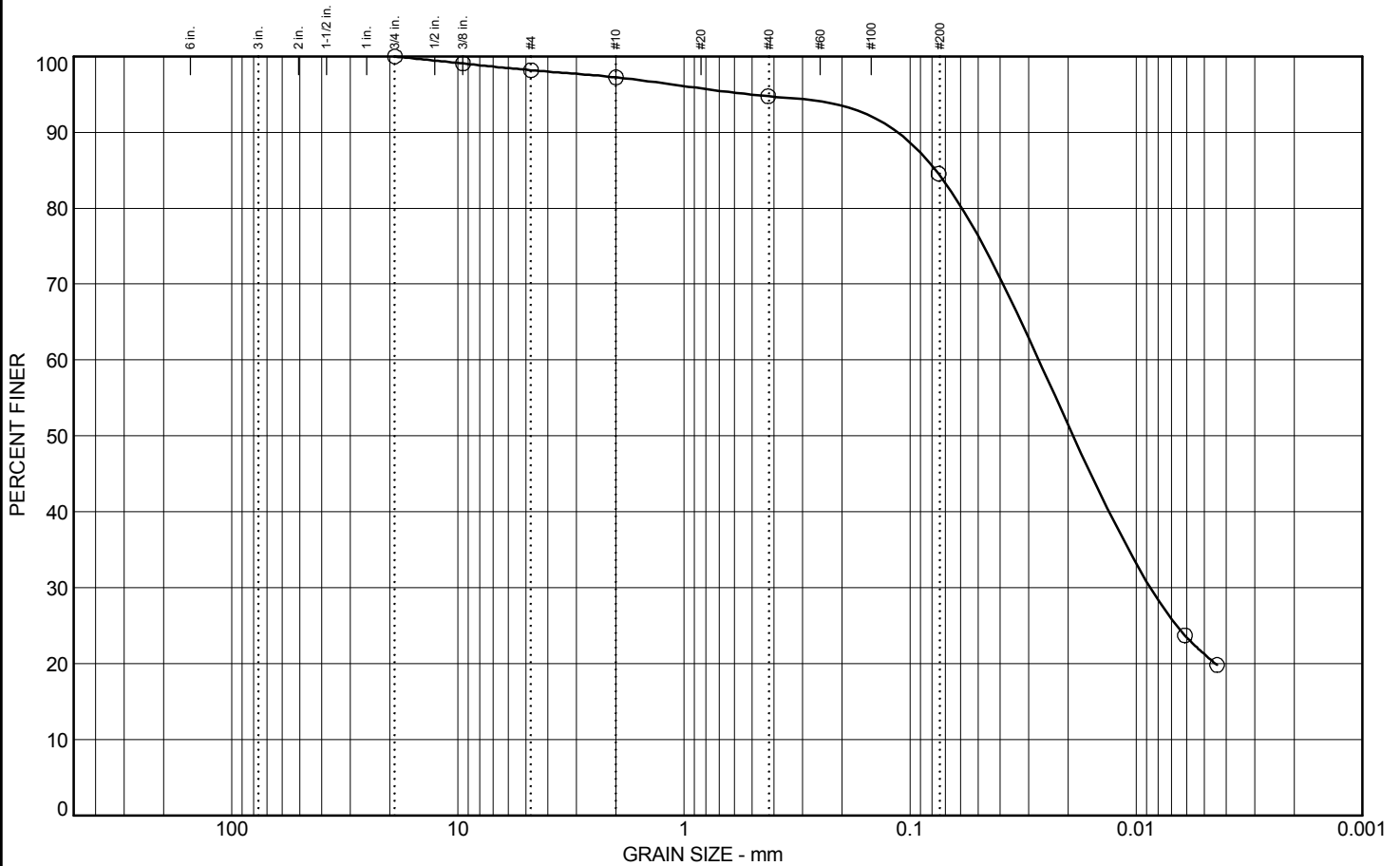
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	2.8	2.6	10.1	63.2	21.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.1		
4.75	98.2		
2	97.2		
0.425	94.8		
0.075	84.6		

* (no specification provided)

Soil Description

low plasticity clay, fine sand

General Characteristics

Moisture Content = 14.4%

Atterberg Limits

LL= 23

PL= 16

PI= 7

Coefficients

$D_{85} = 0.081$

$D_{60} = 0.027$

$D_{50} = 0.018$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4b

Remarks

Group Index = 9

Sample No.: 22

Source of Sample: B-037

Location: -

Date:

Depth / Elev: 53.5' / 695.64'



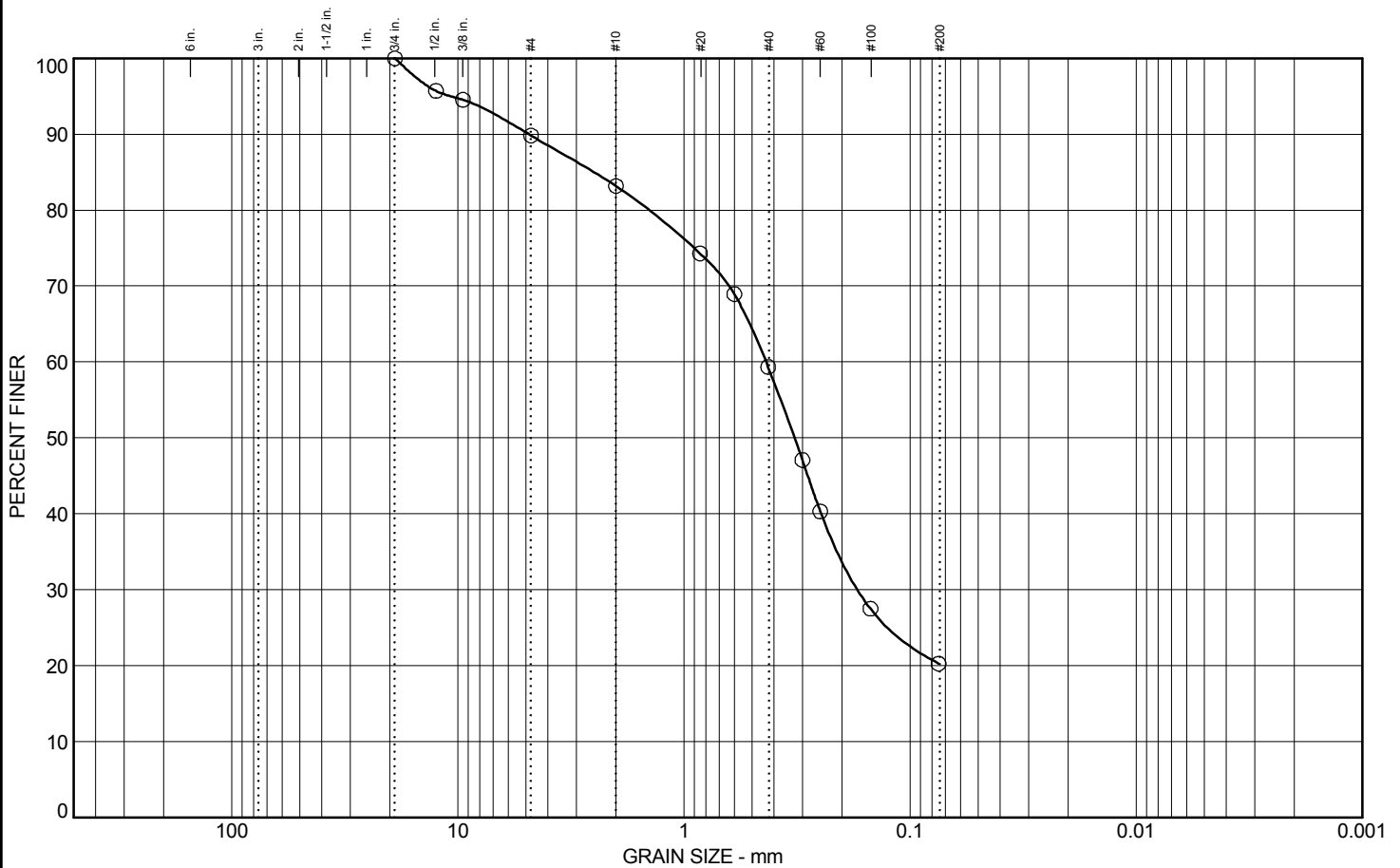
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	16.8	24.3	38.7	20.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	95.7		
9.5	94.5		
4.75	89.8		
2	83.2		
0.85	74.3		
0.6	68.9		
0.425	59.3		
0.3	47.1		
0.25	40.3		
0.15	27.5		
0.075	20.2		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 12.1%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 2.536$
 $D_{30} = 0.166$
 $C_u =$
 $D_{60} = 0.435$
 $D_{15} =$
 $C_c =$
 $D_{50} = 0.326$
 $D_{10} =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 24

Location: -

Source of Sample: B-037

Date:

Depth / Elev: 63.5' / 685.64'



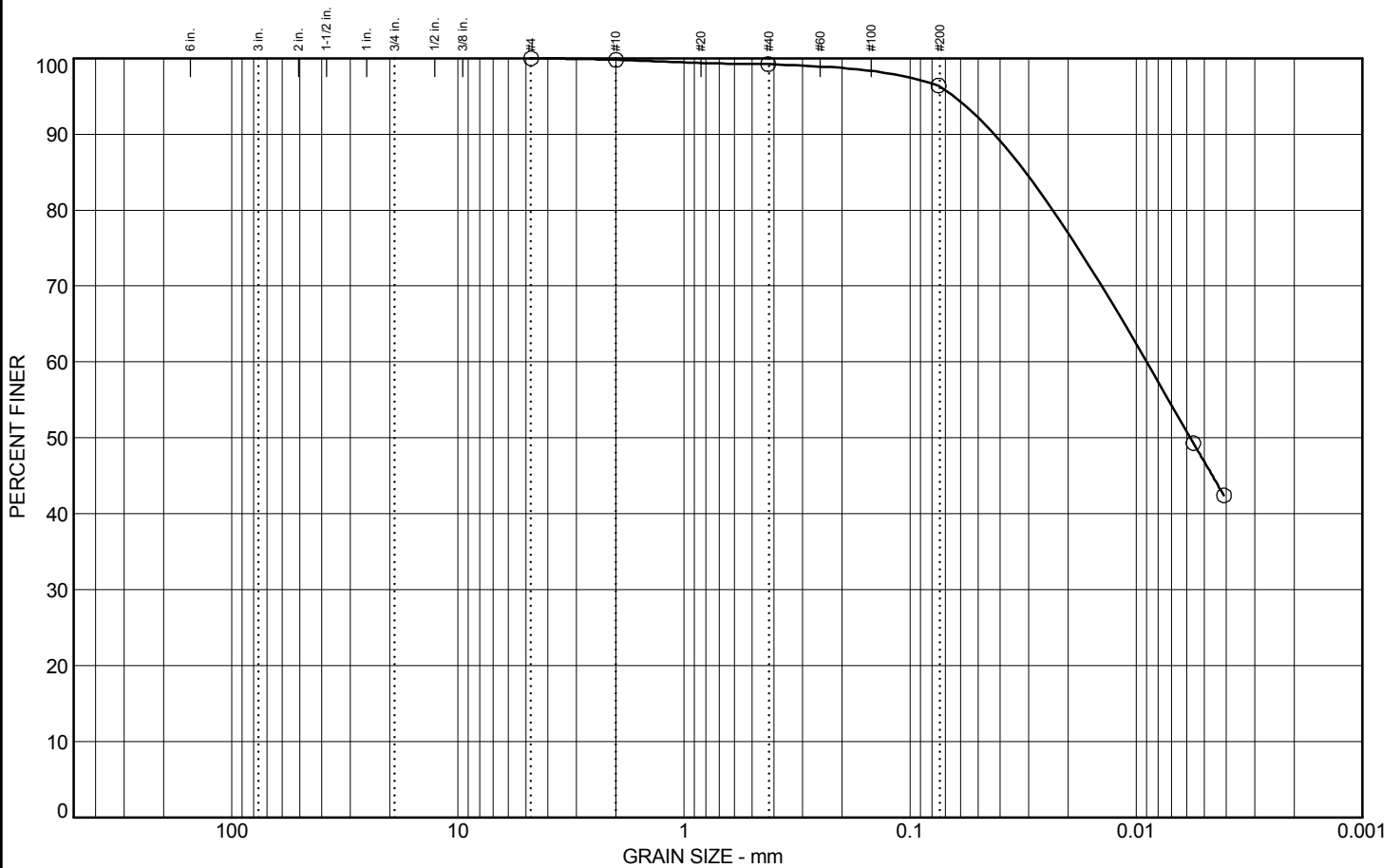
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.2	0.6	2.8	49.6	46.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	99.8		
0.425	99.2		
0.075	96.4		

* (no specification provided)

Soil Description

moderate plasticity clay

General Characteristics

Moisture Content = 20.3%

Atterberg Limits

LL= 38

PL= 19

PI= 19

Coefficients

D₈₅= 0.04

D₆₀= 0.01

D₅₀= 0.006

D₃₀=

D₁₅=

D₁₀=

C_u=

C_c=

Classification

ODOT = A-6b

Remarks

Group Index = 12

Sample No.: 32

Source of Sample: B-037

Location: -

Date:

Depth / Elev: 103.5' / 645.64'



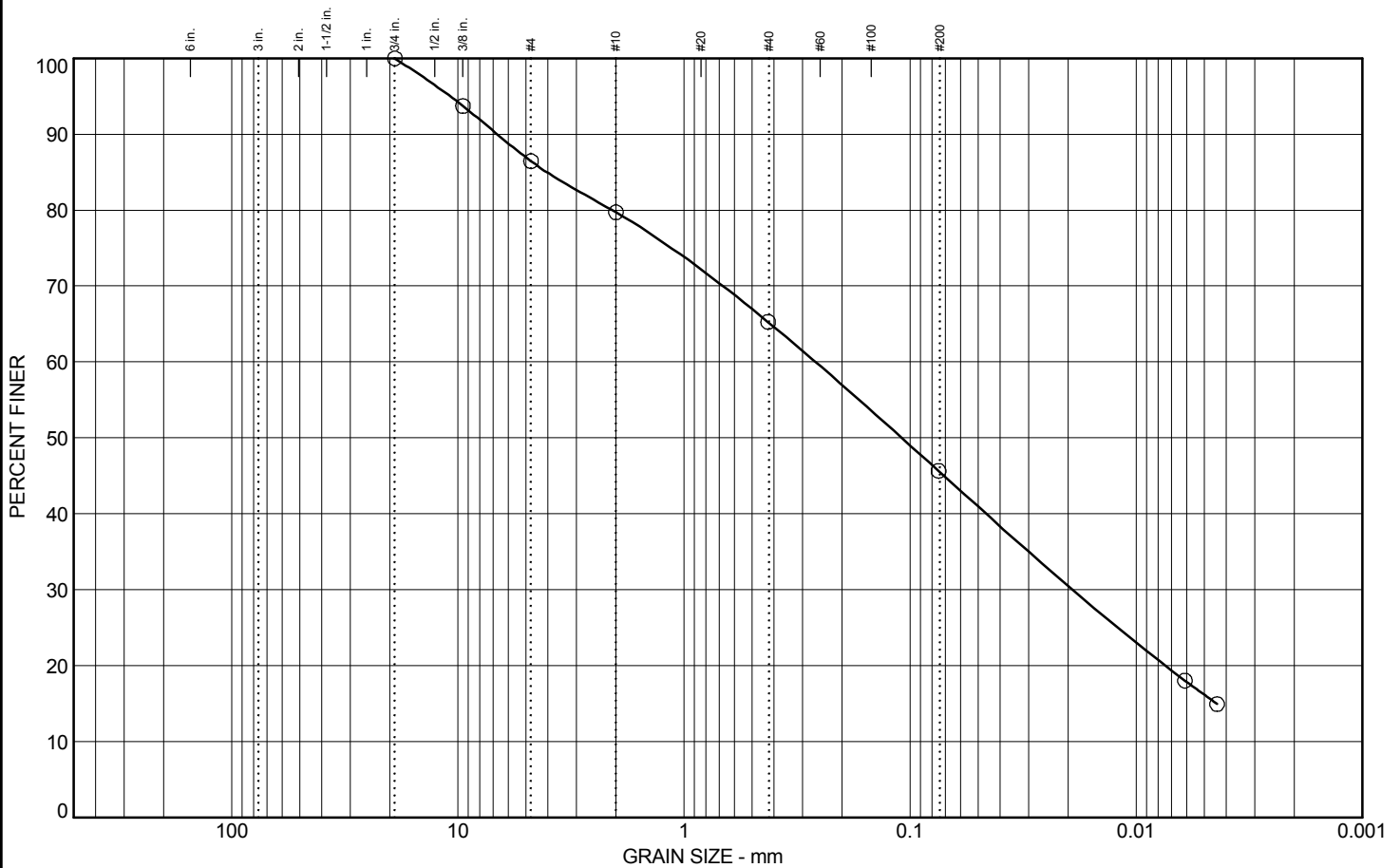
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	20.3	14.6	19.5	29.5	16.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	93.7		
4.75	86.4		
2	79.7		
0.425	65.3		
0.075	45.6		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity silt

General Characteristics

Moisture Content = 9.4%

Atterberg Limits

LL= 21

PL= 20

PI= 1

Coefficients

$D_{85} = 3.948$

$D_{60} = 0.267$

$D_{50} = 0.11$

$D_{30} = 0.018$

$D_{15} = 0.004$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 3

Source of Sample: B-039

Location: -

Date:

Depth / Elev: 6' / 733.53'



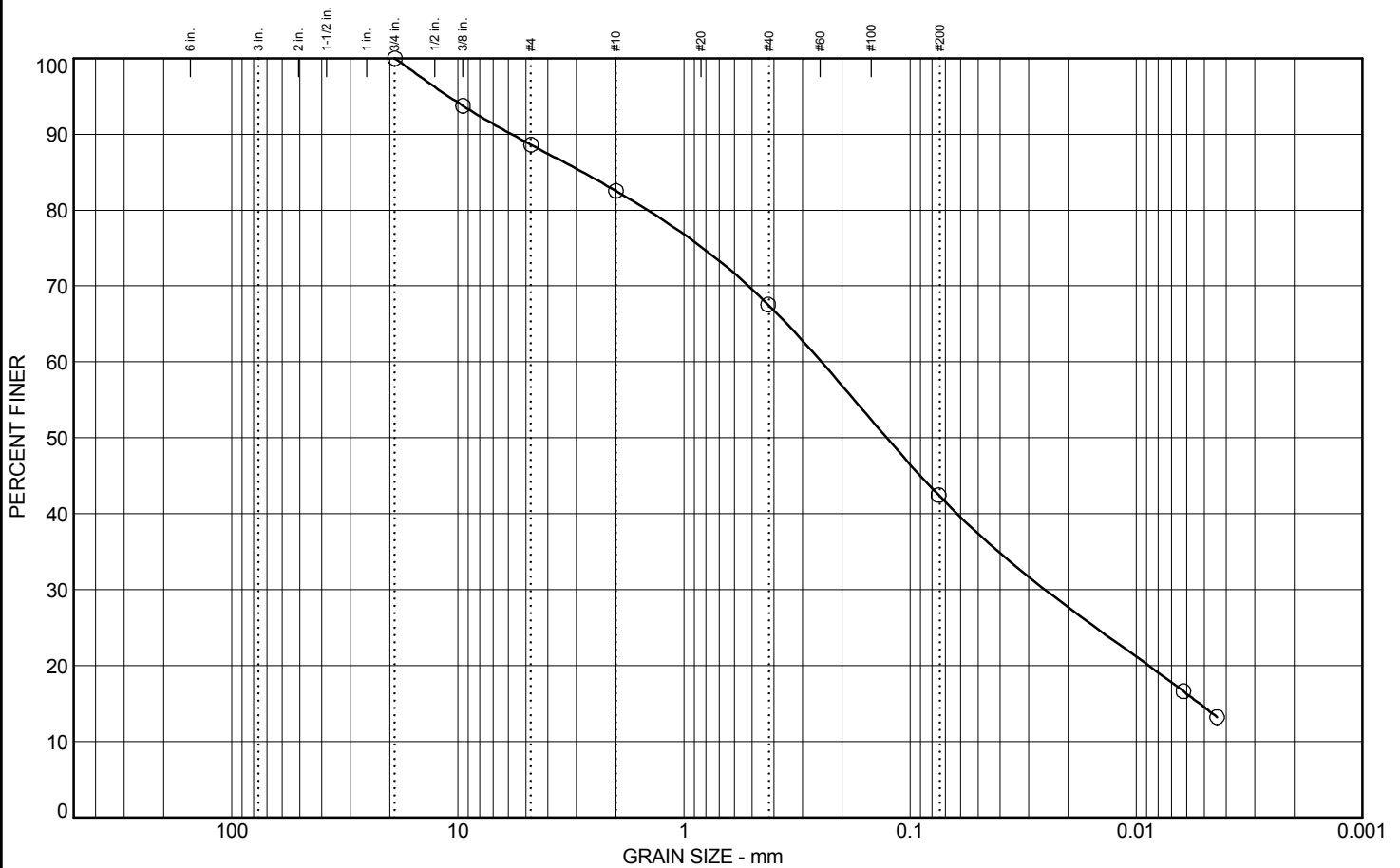
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	17.5	15.2	24.9	28.0	14.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	93.7		
4.75	88.6		
2	82.5		
0.425	67.5		
0.075	42.5		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 7.7%

Atterberg Limits

LL= 20

PL= 13

PI= 7

Coefficients

$D_{85} = 2.841$

$D_{60} = 0.252$

$D_{50} = 0.126$

$D_{30} = 0.023$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Sample No.: 4

Source of Sample: B-039

Location: -

Date:

Depth / Elev: 7.5' / 732.03'



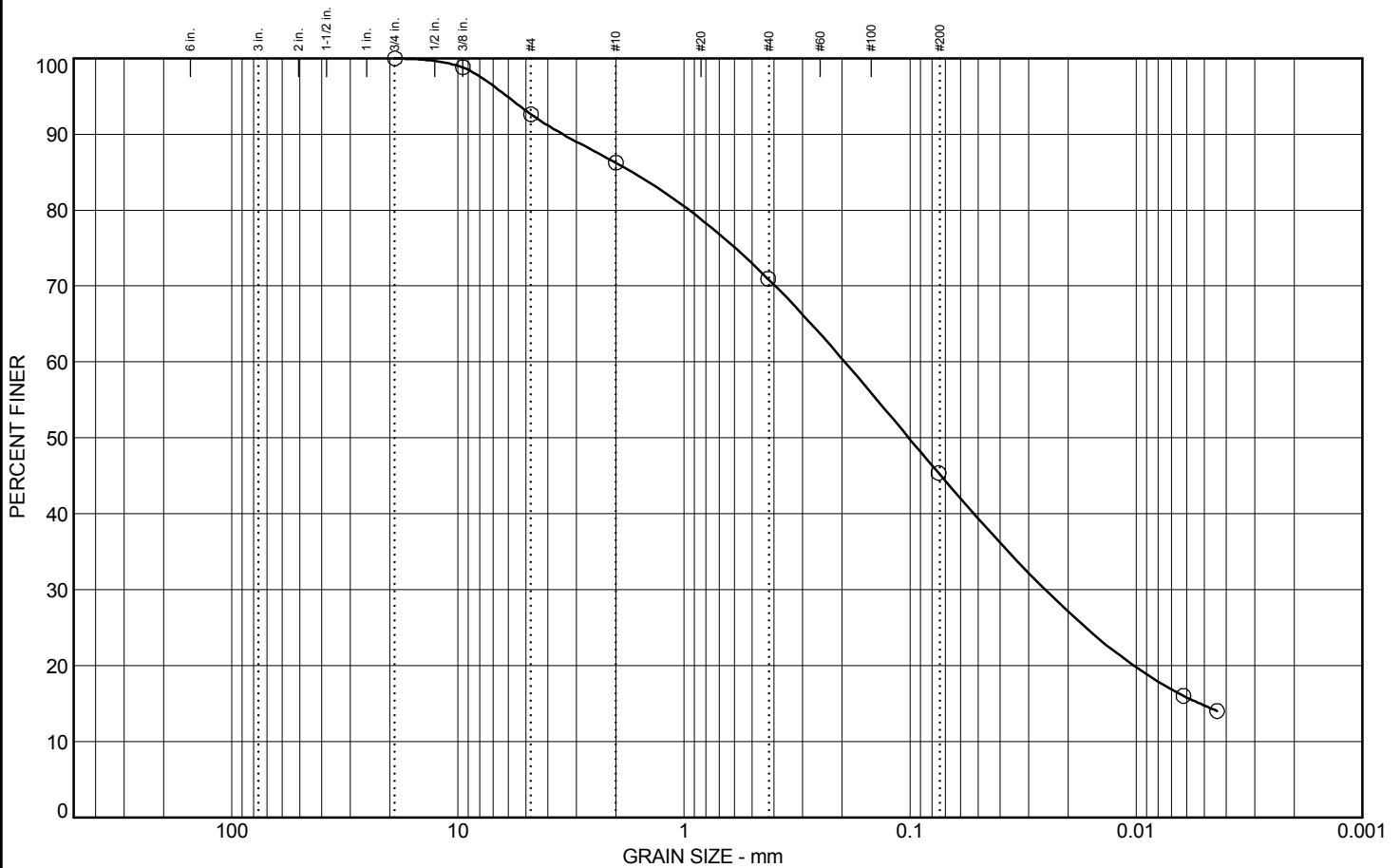
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	13.7	15.5	25.4	30.6	14.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.8		
4.75	92.6		
2	86.3		
0.425	71.0		
0.075	45.4		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 7.9%

Atterberg Limits

LL= 22

PL= 13

PI= 9

Coefficients

$D_{85} = 1.762$

$D_{60} = 0.202$

$D_{50} = 0.103$

$D_{30} = 0.02$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Sample No.: 5

Source of Sample: B-039

Location: -

Date:

Depth / Elev: 9' / 730.53'



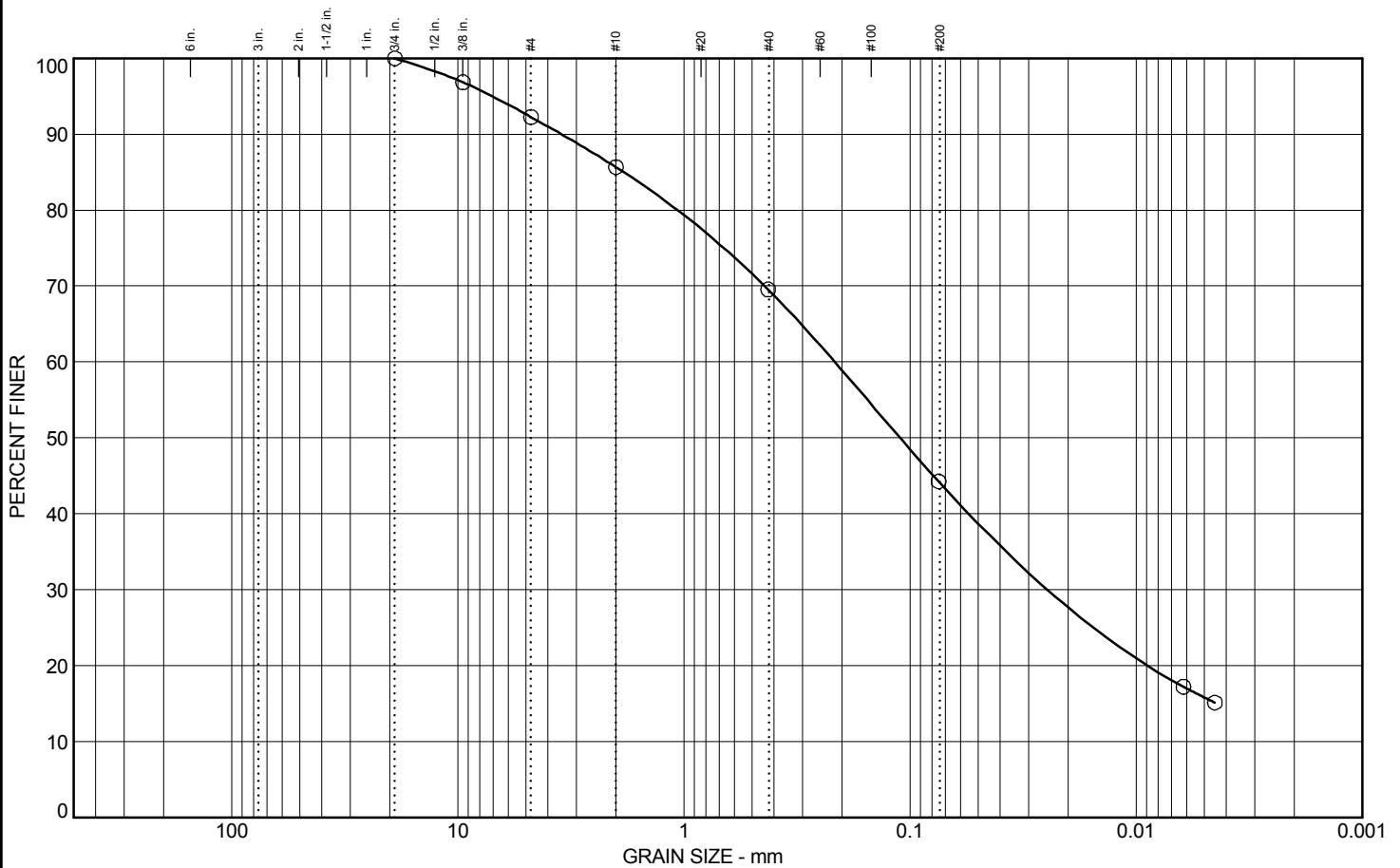
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	14.3	16.3	25.1	28.5	15.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.8		
4.75	92.3		
2	85.7		
0.425	69.5		
0.075	44.3		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 8.0%

Atterberg Limits

LL= 20

PL= 13

PI= 7

Coefficients

$D_{85} = 1.876$

$D_{60} = 0.221$

$D_{50} = 0.111$

$D_{30} = 0.02$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Sample No.: 6

Source of Sample: B-039

Location: -

Date:

Depth / Elev: 10.5' / 729.03'



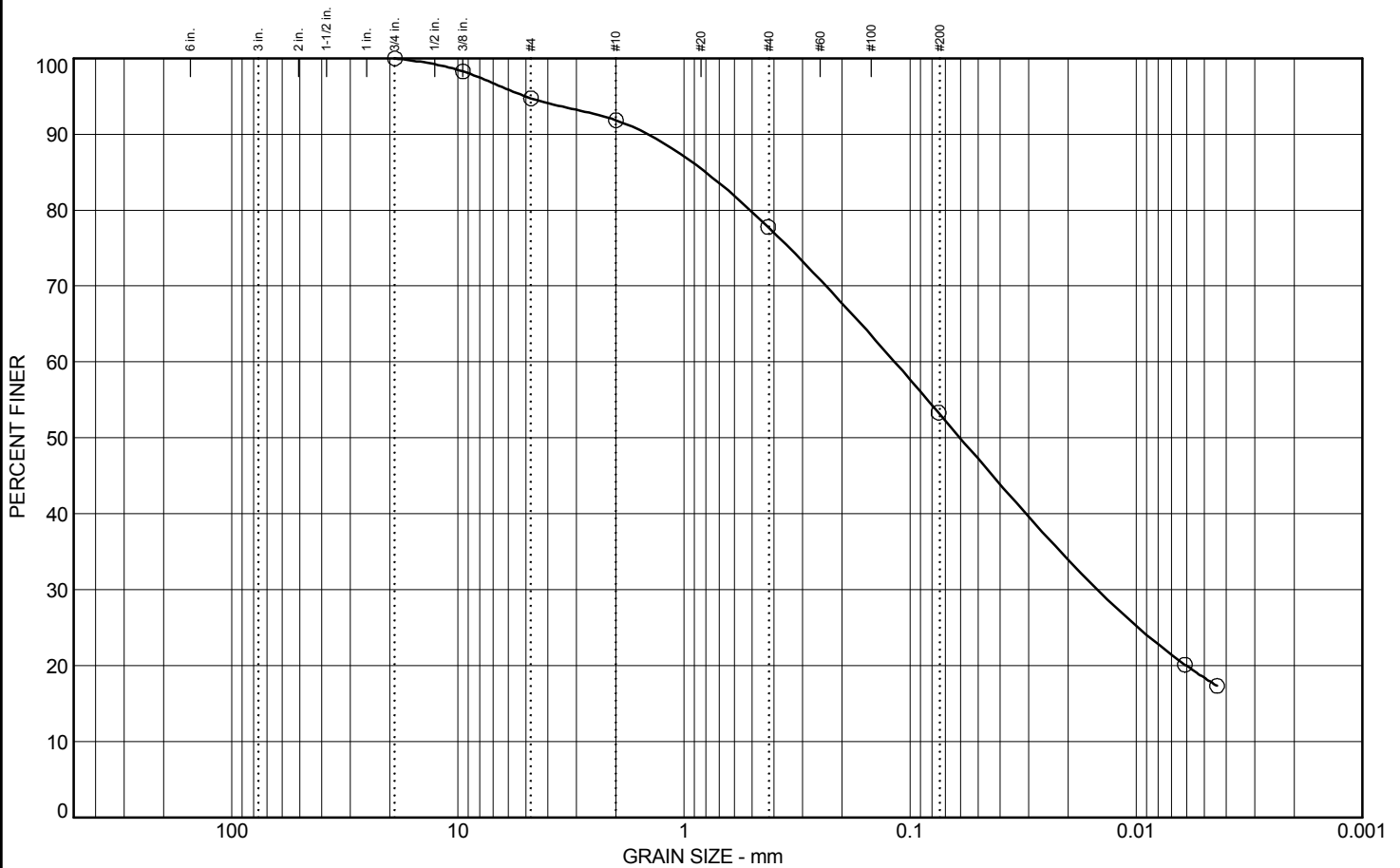
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.2	14.2	24.3	34.9	18.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.3		
4.75	94.7		
2	91.8		
0.425	77.8		
0.075	53.3		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.6%

Atterberg Limits

LL= 22

PL= 13

PI= 9

Coefficients

$D_{85} = 0.942$

$D_{60} = 0.12$

$D_{50} = 0.058$

$D_{30} = 0.013$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 2

Source of Sample: B-042

Location: -

Date:

Depth / Elev: 3.5' / 738.19'



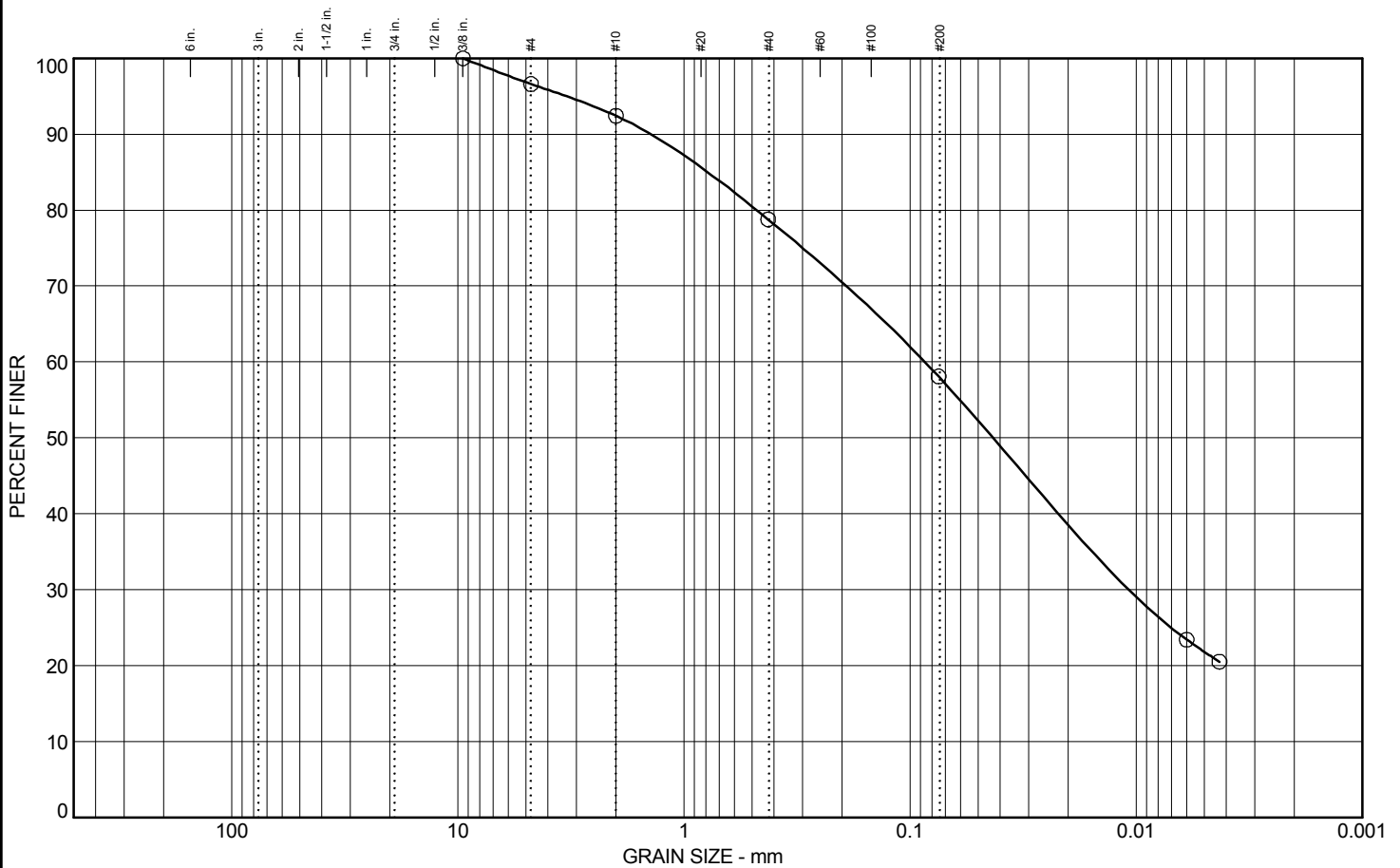
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	7.6	13.8	20.6	36.3	21.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	96.6		
2	92.4		
0.425	78.8		
0.075	58.1		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.5%

Atterberg Limits

LL= 22

PL= 13

PI= 9

Coefficients

$D_{85} = 0.861$

$D_{60} = 0.088$

$D_{50} = 0.042$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 3

Source of Sample: B-042

Location: -

Date:

Depth / Elev: 6' / 735.69'



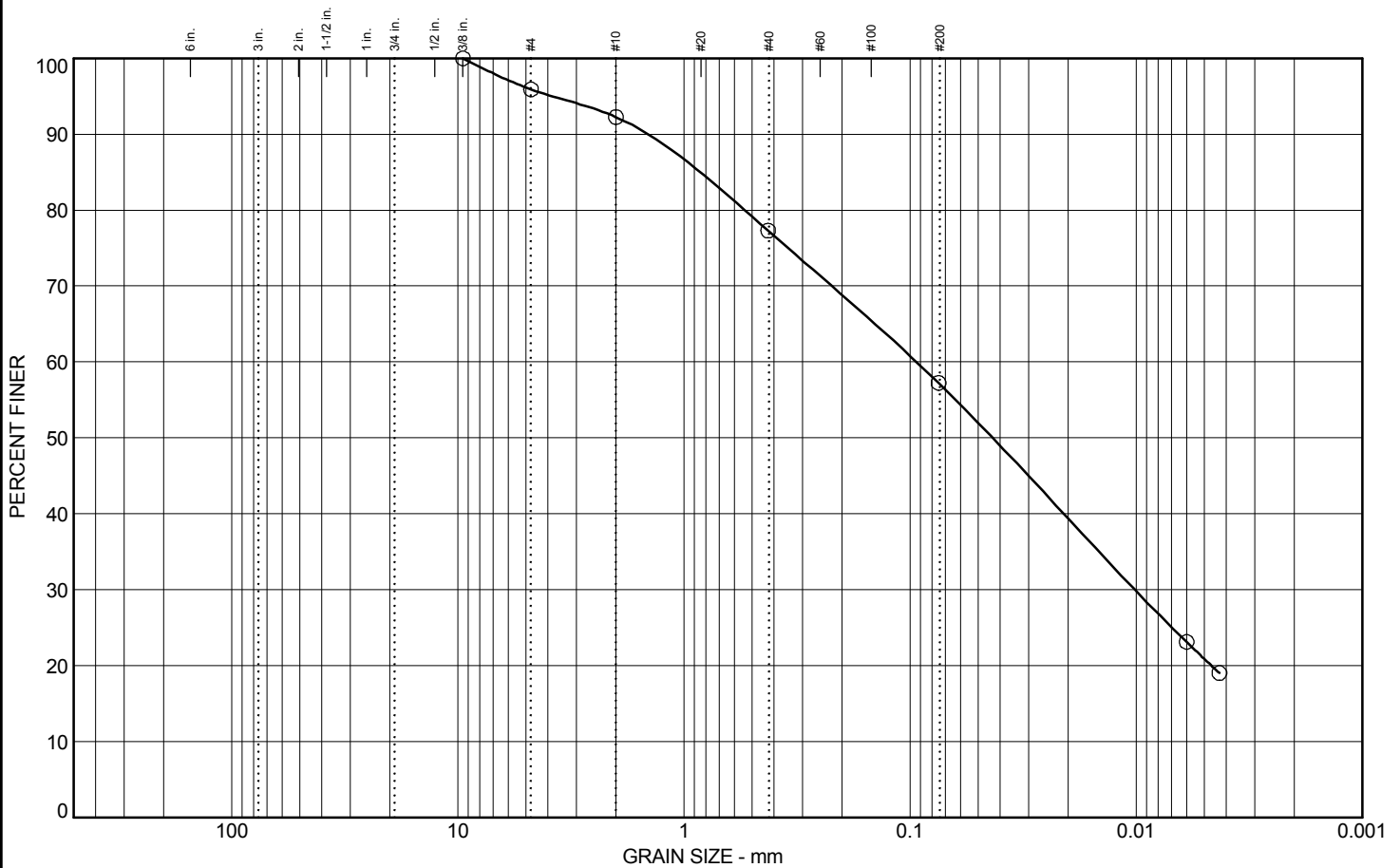
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	7.7	15.1	19.9	36.4	20.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	95.9		
2	92.3		
0.425	77.3		
0.075	57.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.2%

Atterberg Limits

LL= 23

PL= 14

PI= 9

Coefficients

$D_{85} = 0.943$

$D_{60} = 0.095$

$D_{50} = 0.044$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 4

Source of Sample: B-042

Location: -

Date:

Depth / Elev: 7.5' / 734.19'



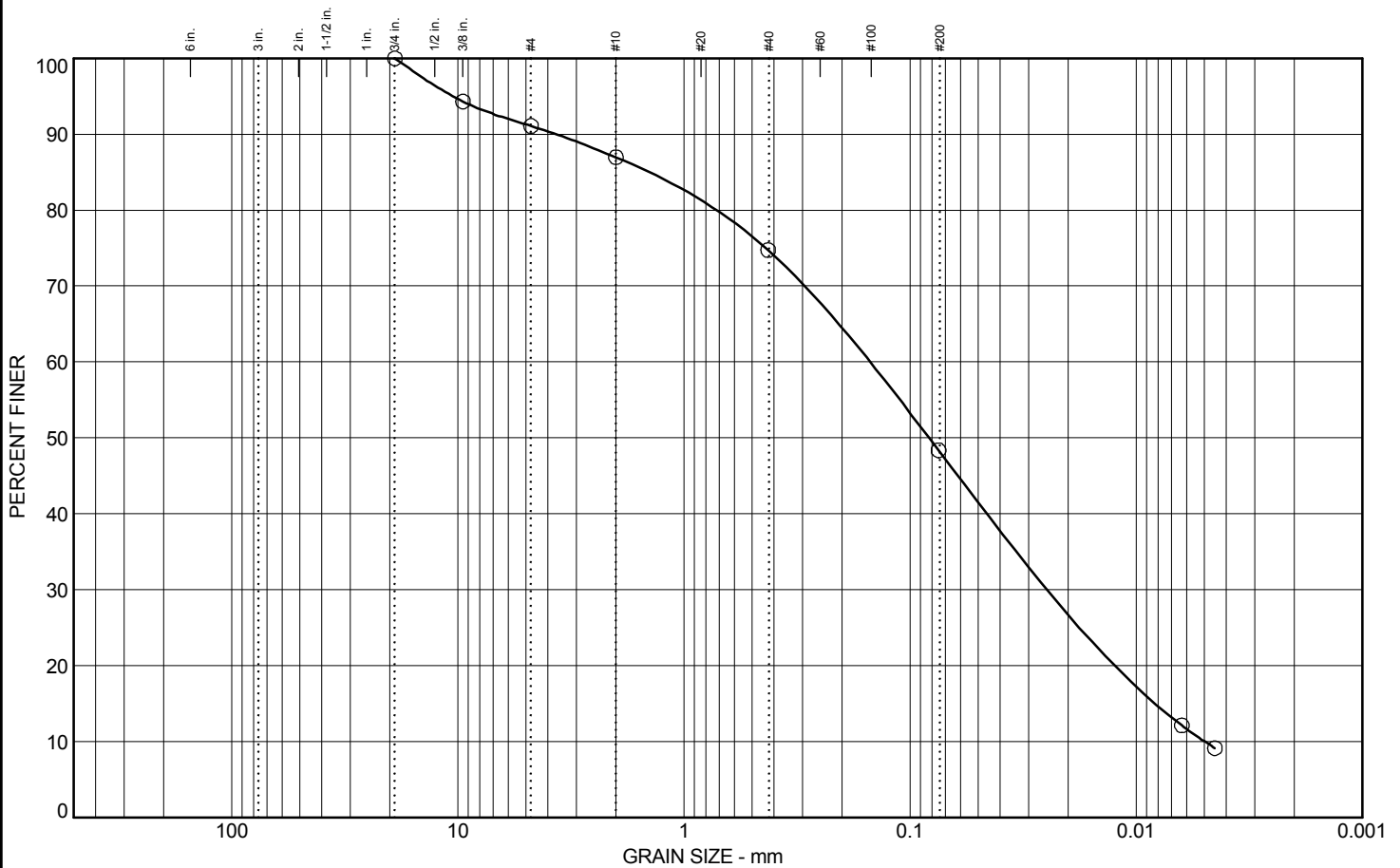
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	13.0	12.4	26.2	38.3	10.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.3		
4.75	91.1		
2	87.0		
0.425	74.7		
0.075	48.4		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 11.6%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 1.559$

$D_{60} = 0.161$

$D_{50} = 0.084$

$D_{30} = 0.021$

$D_{15} = 0.008$

$D_{10} = 0.005$

$C_u = 32.41$

$C_c = 0.57$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 3

Source of Sample: B-043

Location: -

Date:

Depth / Elev: 6' / 737.12'



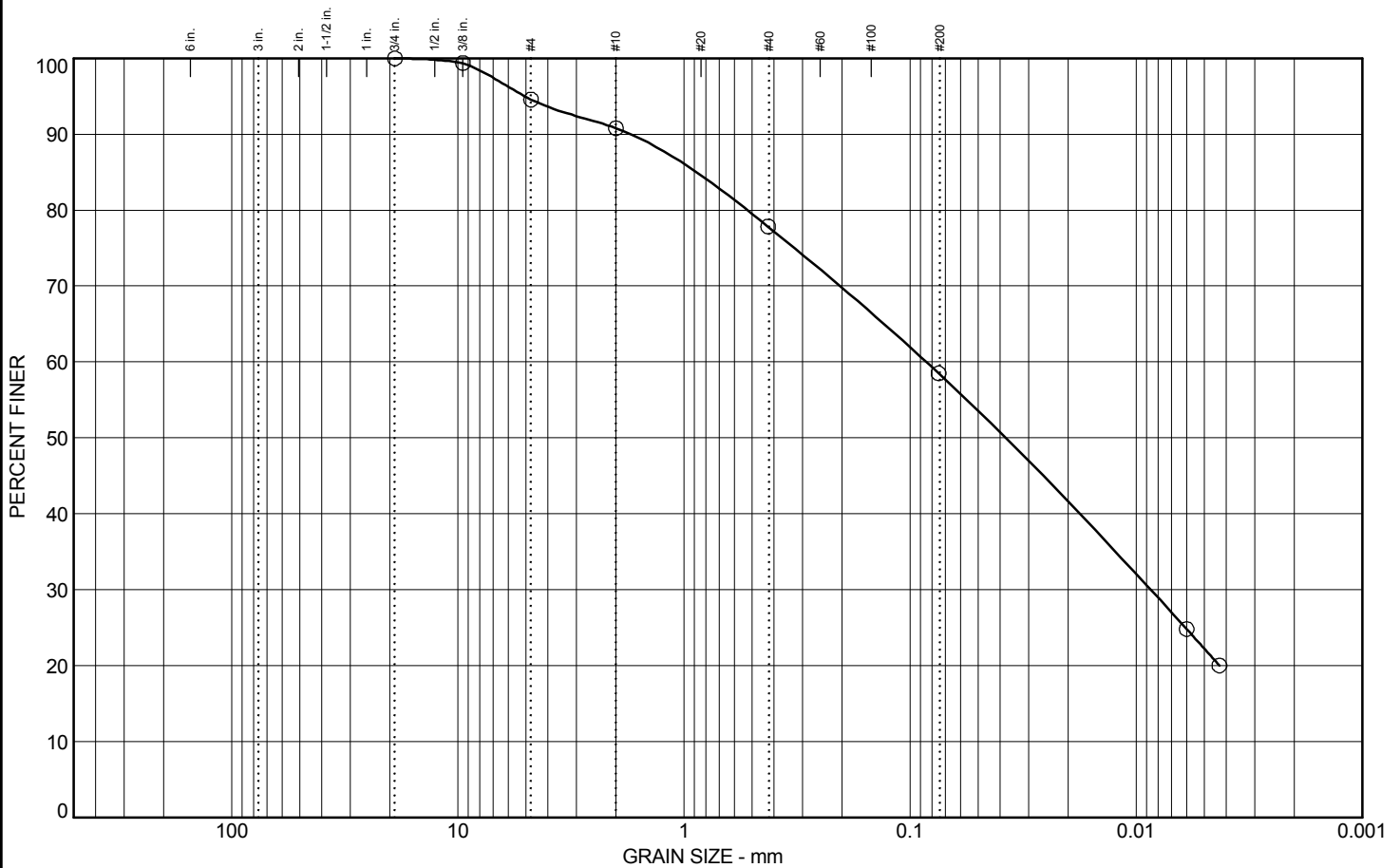
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.2	13.1	19.2	36.3	22.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.4		
4.75	94.6		
2	90.8		
0.425	77.8		
0.075	58.5		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.7%

Atterberg Limits

LL = 22

PL = 16

PI = 6

Coefficients

$D_{85} = 1.001$

$D_{60} = 0.086$

$D_{50} = 0.04$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 5

Source of Sample: B-043

Location: -

Date:

Depth / Elev: 9' / 734.12'



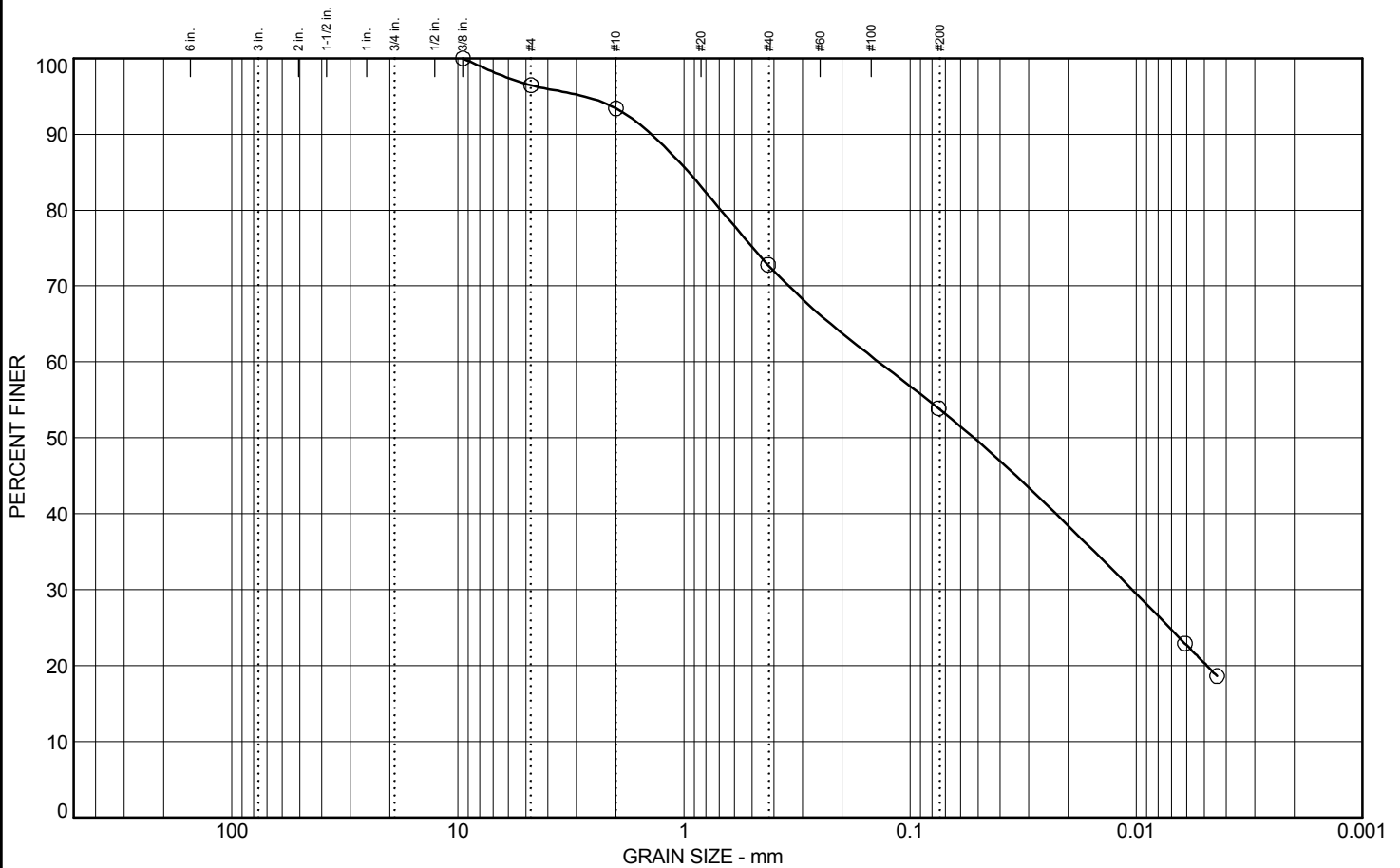
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.6	20.7	18.8	33.6	20.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	96.5		
2	93.4		
0.425	72.8		
0.075	53.9		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.2%

Atterberg Limits

LL = 24

PL = 13

PI = 11

Coefficients

$D_{85} = 1.063$

$D_{60} = 0.131$

$D_{50} = 0.055$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 4

Sample No.: 6

Source of Sample: B-043

Location: -

Date:

Depth / Elev: 10.5' / 732.62'



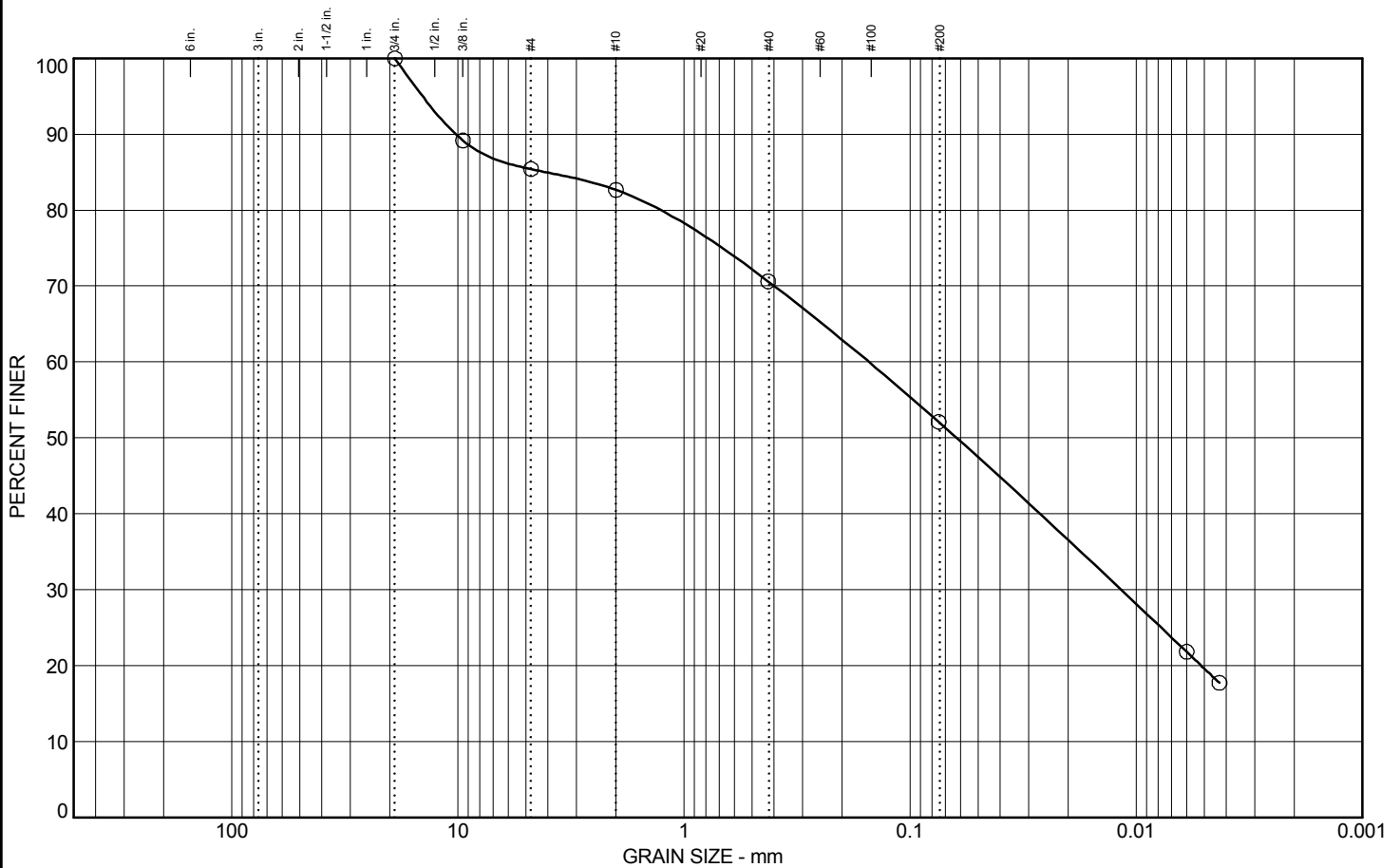
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	17.3	12.2	18.4	32.5	19.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	89.2		
4.75	85.4		
2	82.7		
0.425	70.6		
0.075	52.1		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.5%

Atterberg Limits

LL= 23

PL= 11

PI= 12

Coefficients

$D_{85} = 4.175$

$D_{60} = 0.157$

$D_{50} = 0.063$

$D_{30} = 0.012$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 4

Sample No.: 12

Source of Sample: B-043

Location: -

Date:

Depth / Elev: 23.5' / 719.62'



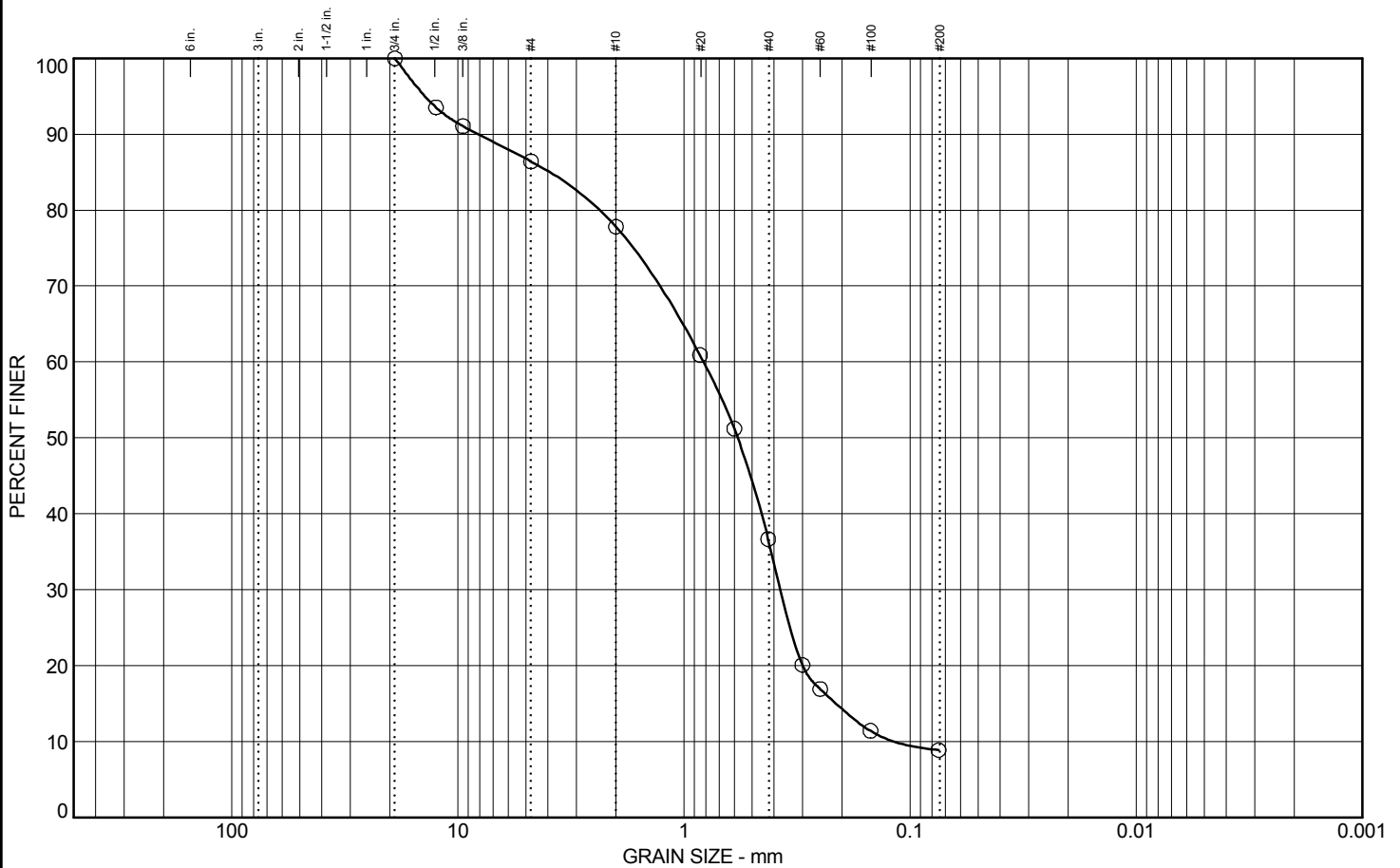
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	22.2	41.7	27.2	8.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	93.5		
9.5	91.1		
4.75	86.4		
2	77.8		
0.85	60.9		
0.6	51.2		
0.425	36.7		
0.3	20.1		
0.25	16.9		
0.15	11.4		
0.075	8.9		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 9.8%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 4.124$

$D_{60} = 0.823$

$D_{50} = 0.583$

$D_{30} = 0.37$

$D_{15} = 0.21$

$D_{10} = 0.103$

$C_u = 8.02$

$C_c = 1.62$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 17

Source of Sample: B-043

Location: -

Date:

Depth / Elev: 43.5' / 699.62'



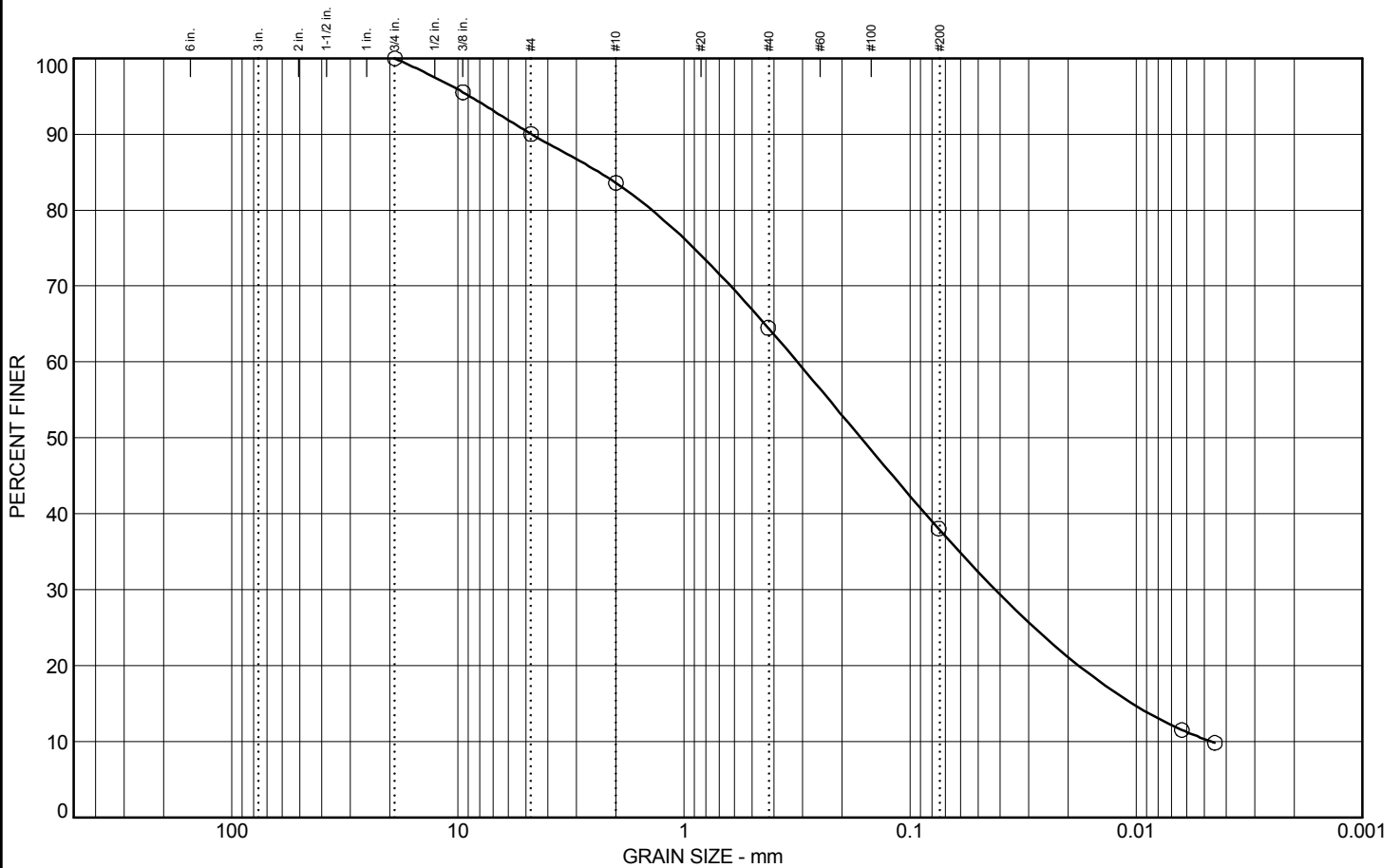
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	16.4	19.3	26.3	27.7	10.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.5		
4.75	90.0		
2	83.6		
0.425	64.5		
0.075	38.0		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 7.7%

Atterberg Limits

LL= 18

PL= 11

PI= 7

Coefficients

$D_{85} = 2.419$

$D_{60} = 0.317$

$D_{50} = 0.164$

$D_{30} = 0.035$

$D_{15} = 0.009$

$D_{10} = 0.005$

$C_u = 67.64$

$C_c = 0.85$

Classification

ODOT = A-4a

Remarks

Group Index = 1

Sample No.: 22

Source of Sample: B-043

Location: -

Date:

Depth / Elev: 68.5' / 674.62'



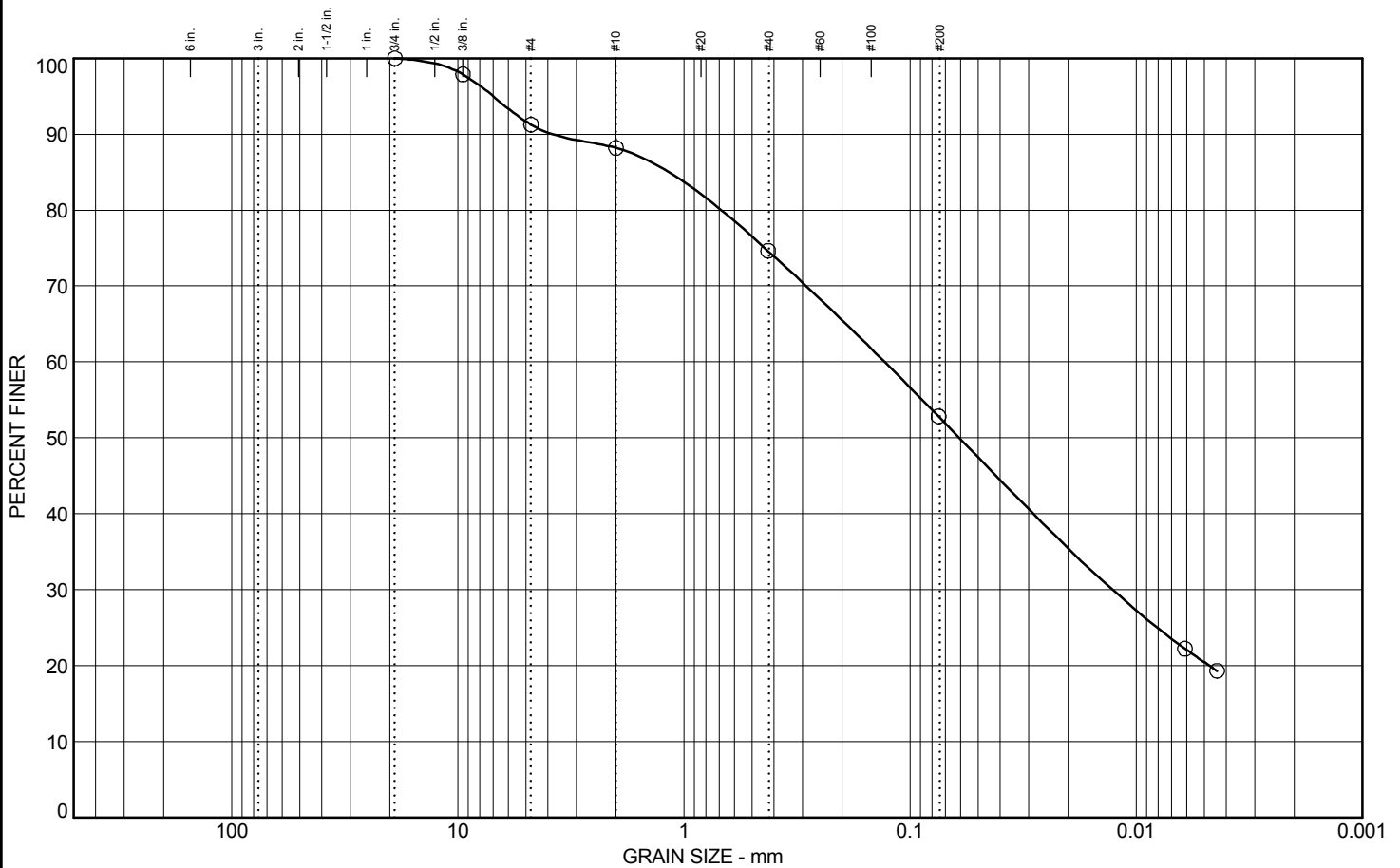
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	11.8	13.7	21.7	32.4	20.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	97.9		
4.75	91.3		
2	88.2		
0.425	74.6		
0.075	52.8		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.5%

Atterberg Limits

LL = 22

PL = 14

PI = 8

Coefficients

$D_{85} = 1.388$

$D_{60} = 0.133$

$D_{50} = 0.059$

$D_{30} = 0.012$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 3

Source of Sample: B-045

Location: -

Date:

Depth / Elev: 5' / 740.83'



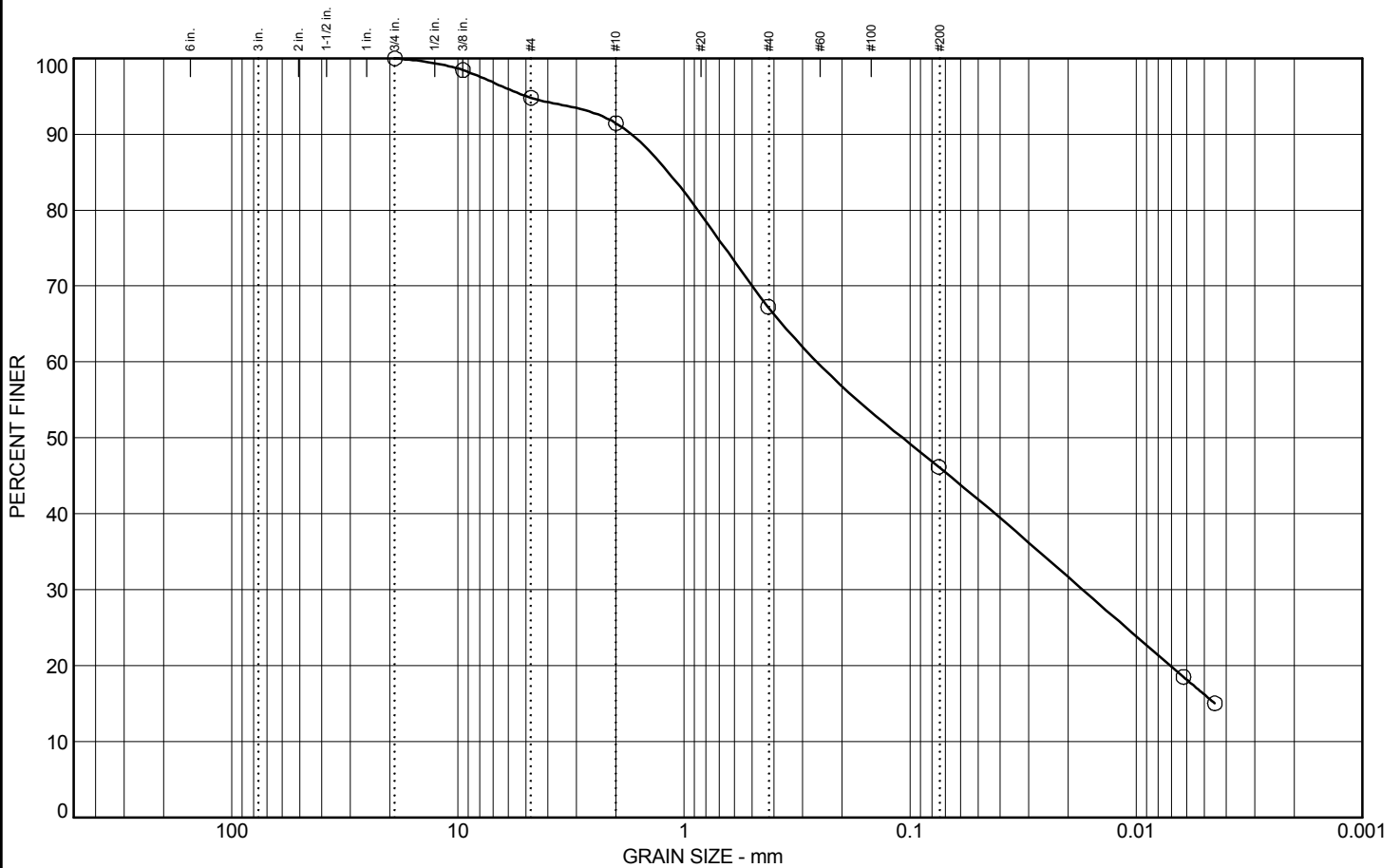
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.6	24.3	20.9	30.0	16.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.4		
4.75	94.8		
2	91.4		
0.425	67.3		
0.075	46.2		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 9.4%

Atterberg Limits

LL= 23

PL= 14

PI= 9

Coefficients

$D_{85} = 1.323$

$D_{60} = 0.234$

$D_{50} = 0.103$

$D_{30} = 0.017$

$D_{15} = 0.004$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 4

Source of Sample: B-045

Location: -

Date:

Depth / Elev: 6.5' / 739.33'



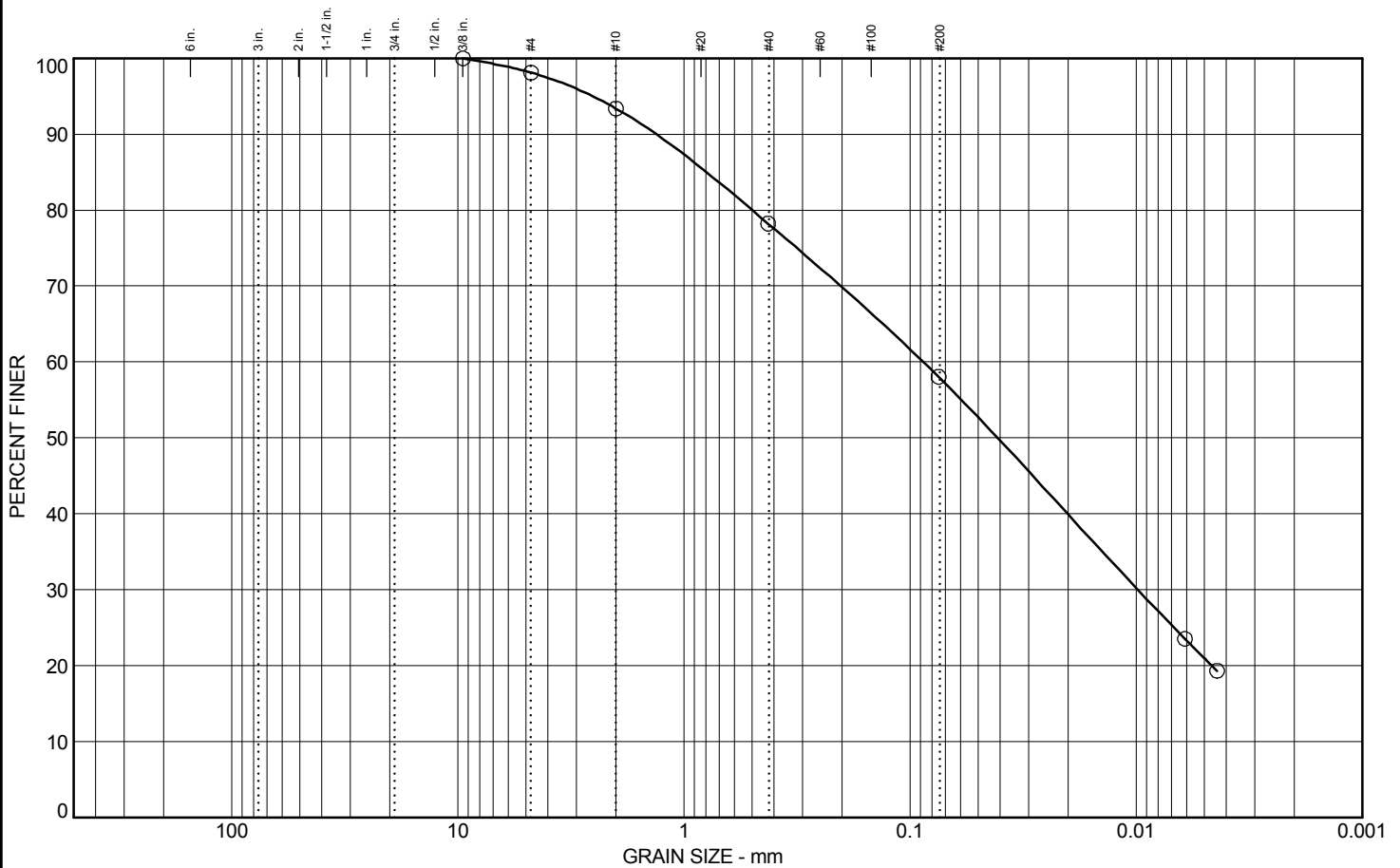
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.6	15.3	20.0	37.1	20.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	98.1		
2	93.4		
0.425	78.2		
0.075	58.0		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.1%

Atterberg Limits

LL= 25

PL= 14

PI= 11

Coefficients

$D_{85} = 0.849$

$D_{60} = 0.089$

$D_{50} = 0.042$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 5

Sample No.: 5

Source of Sample: B-045

Location: -

Date:

Depth / Elev: 8' / 737.83'



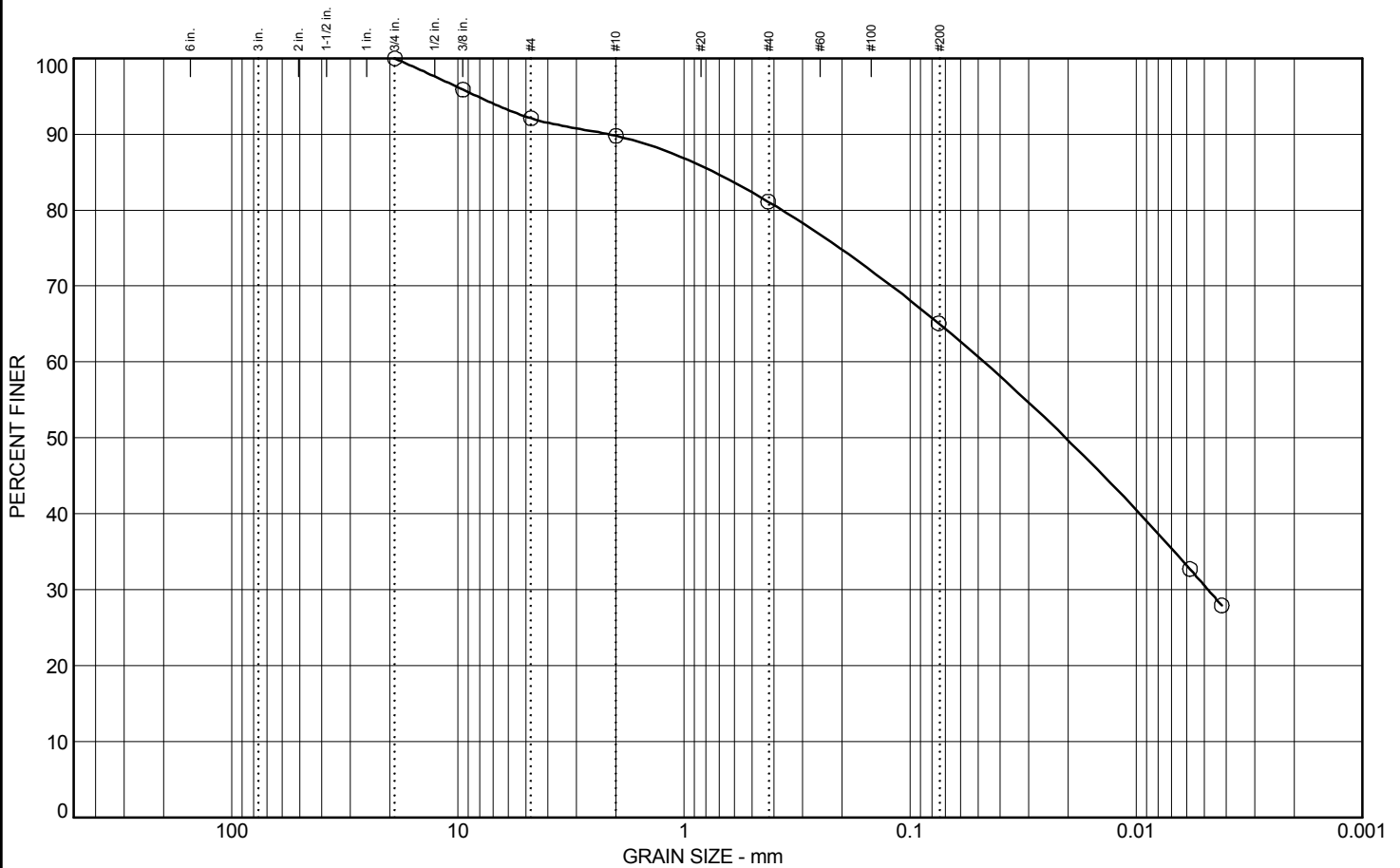
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.2	8.8	15.9	34.6	30.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.9		
4.75	92.1		
2	89.8		
0.425	81.1		
0.075	65.1		

* (no specification provided)

Soil Description

moderate plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 15.5%

Atterberg Limits

LL= 37

PL= 18

PI= 19

Coefficients

$D_{85} = 0.85$

$D_{60} = 0.05$

$D_{50} = 0.023$

$D_{30} = 0.005$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6b

Remarks

Group Index = 10

Sample No.: 1

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 0' / 770.05'



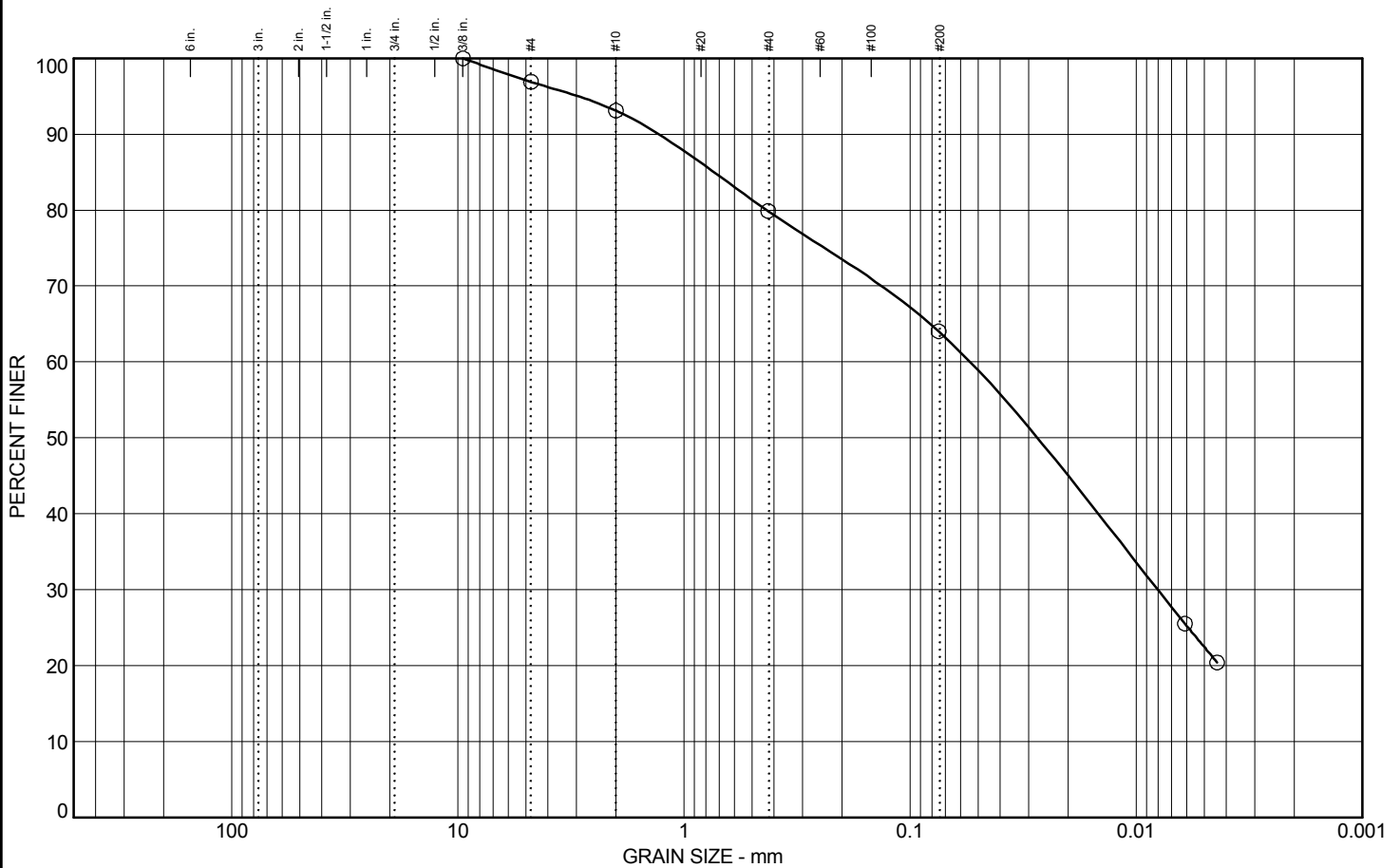
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.9	13.3	15.7	41.6	22.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	96.9		
2	93.1		
0.425	79.9		
0.075	64.0		

* (no specification provided)

Soil Description

moderate plasticity silt, fine to medium sand

General Characteristics

Moisture Content = 28.8%

Atterberg Limits

LL = 37

PL = 25

PI = 12

Coefficients

$D_{85} = 0.774$

$D_{60} = 0.058$

$D_{50} = 0.03$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 7

Sample No.: 2

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 1.5' / 768.55'



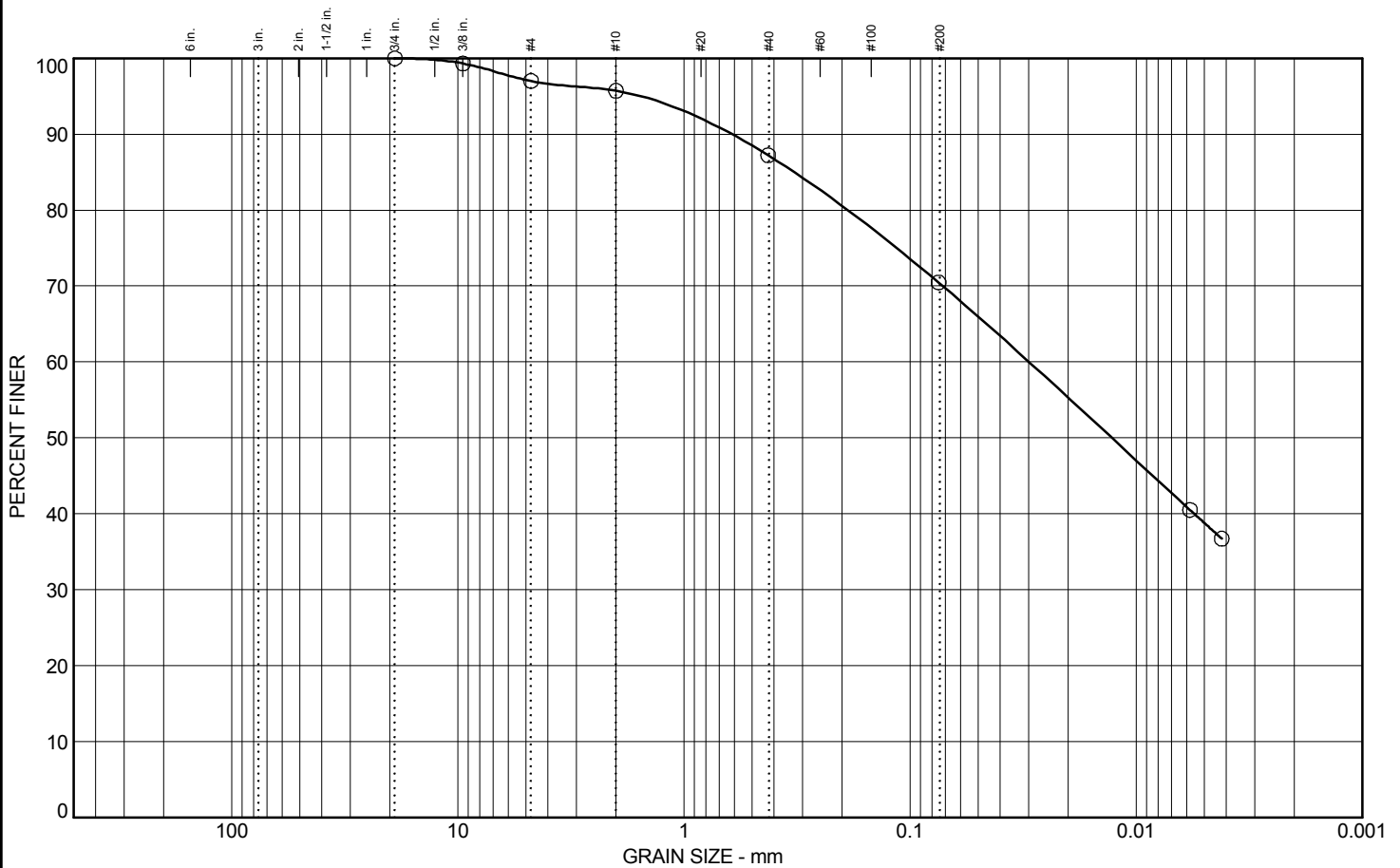
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	4.3	8.6	16.6	31.7	38.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.3		
4.75	97.0		
2	95.7		
0.425	87.2		
0.075	70.5		

* (no specification provided)

Soil Description

moderate plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 23.5%

Atterberg Limits

LL= 40

PL= 19

PI= 21

Coefficients

$D_{85} = 0.338$

$D_{60} = 0.031$

$D_{50} = 0.013$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6b

Remarks

Group Index = 12

Sample No.: 3

Location: -

Source of Sample: B-046

Date:

Depth / Elev: 3' / 767.05'



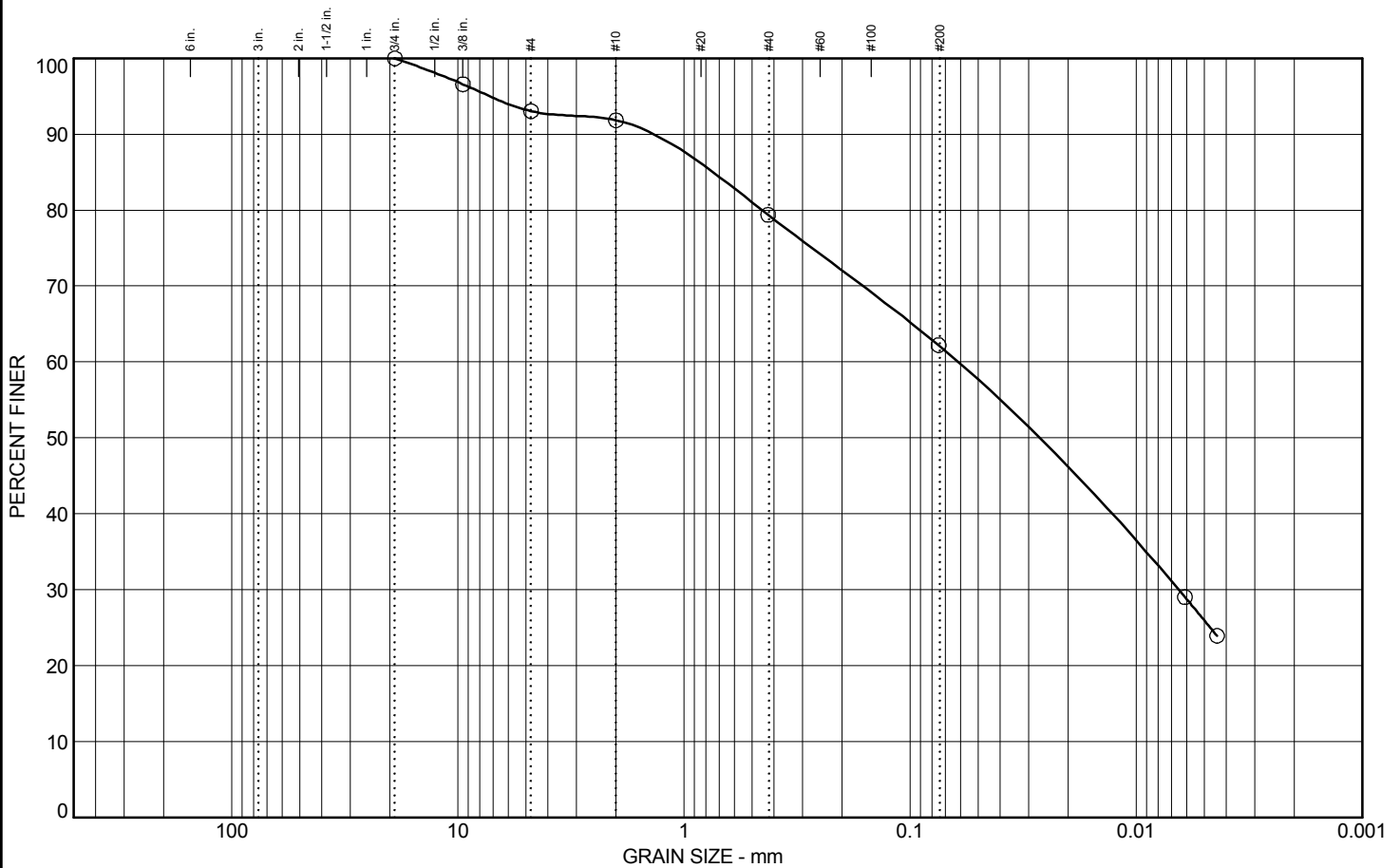
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.2	12.6	17.1	36.3	25.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.6		
4.75	93.0		
2	91.8		
0.425	79.4		
0.075	62.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 15.9%

Atterberg Limits

LL= 27

PL= 16

PI= 11

Coefficients

$D_{85} = 0.855$

$D_{60} = 0.063$

$D_{50} = 0.03$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 6

Sample No.: 4

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 4.5' / 765.55'



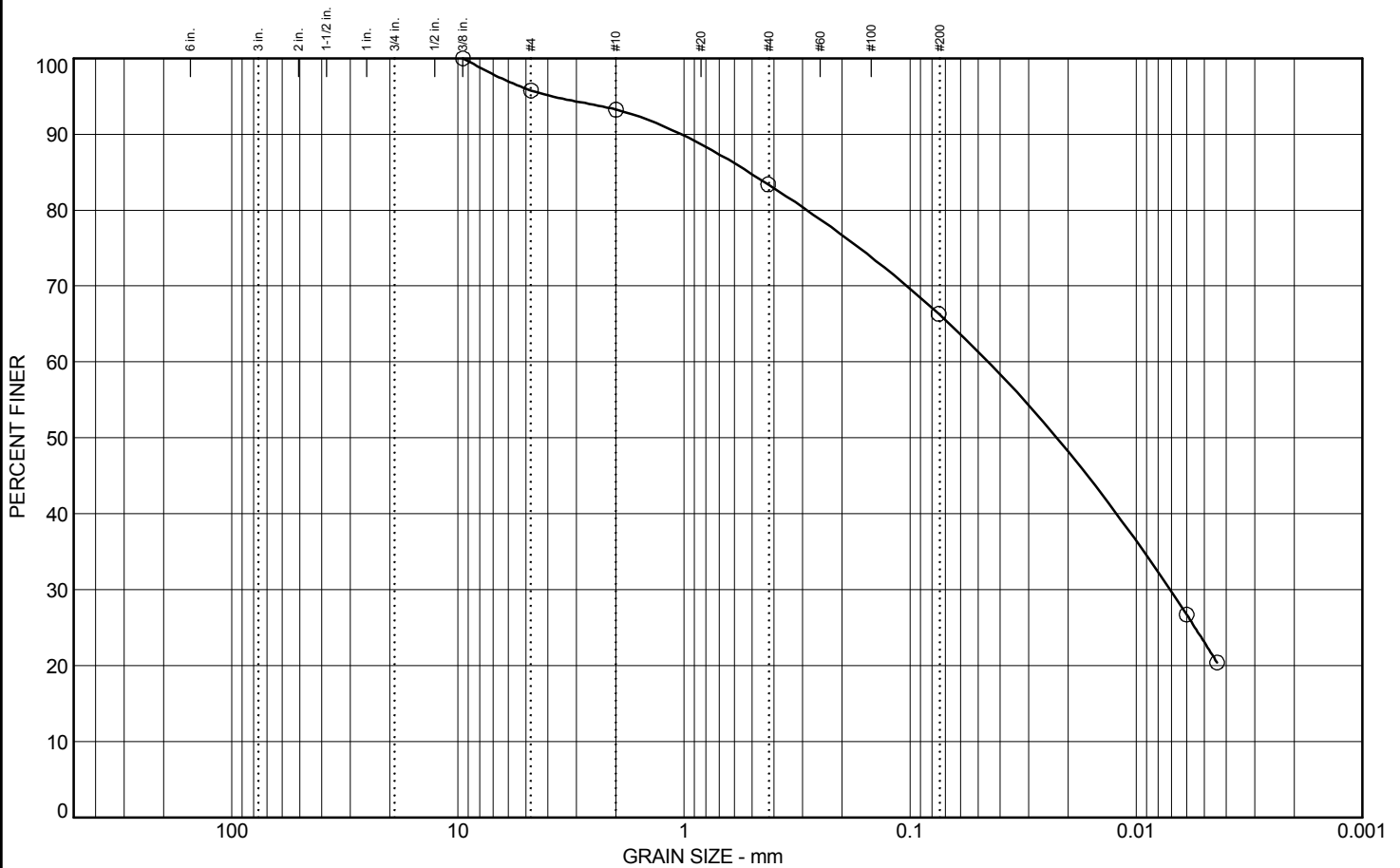
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.8	10.0	16.9	43.3	23.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	95.8		
2	93.2		
0.425	83.4		
0.075	66.3		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 12.4%

Atterberg Limits

LL= 24

PL= 15

PI= 9

Coefficients

$D_{85} = 0.547$

$D_{60} = 0.05$

$D_{50} = 0.026$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 7

Sample No.: 7

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 11' / 759.05'



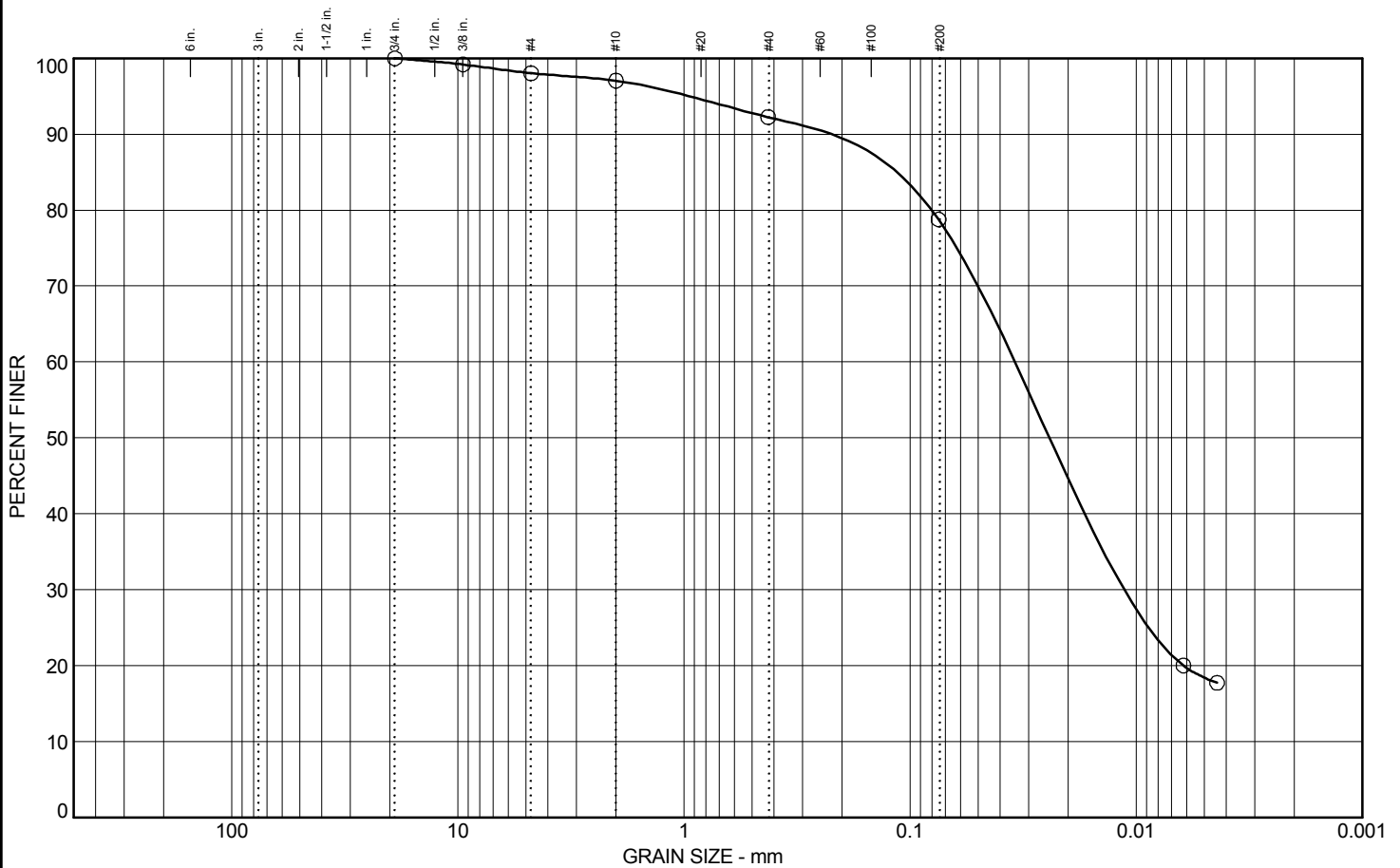
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	2.9	4.9	13.4	60.2	18.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.2		
4.75	98.0		
2	97.1		
0.425	92.3		
0.075	78.8		

* (no specification provided)

Soil Description

low plasticity clay, fine sand

General Characteristics

Moisture Content = 13.9%

Atterberg Limits

LL = 20

PL = 14

PI = 6

Coefficients

$D_{85} = 0.167$

$D_{60} = 0.034$

$D_{50} = 0.022$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4b

Remarks

Group Index = 9

Sample No.: 9

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 16' / 754.05'



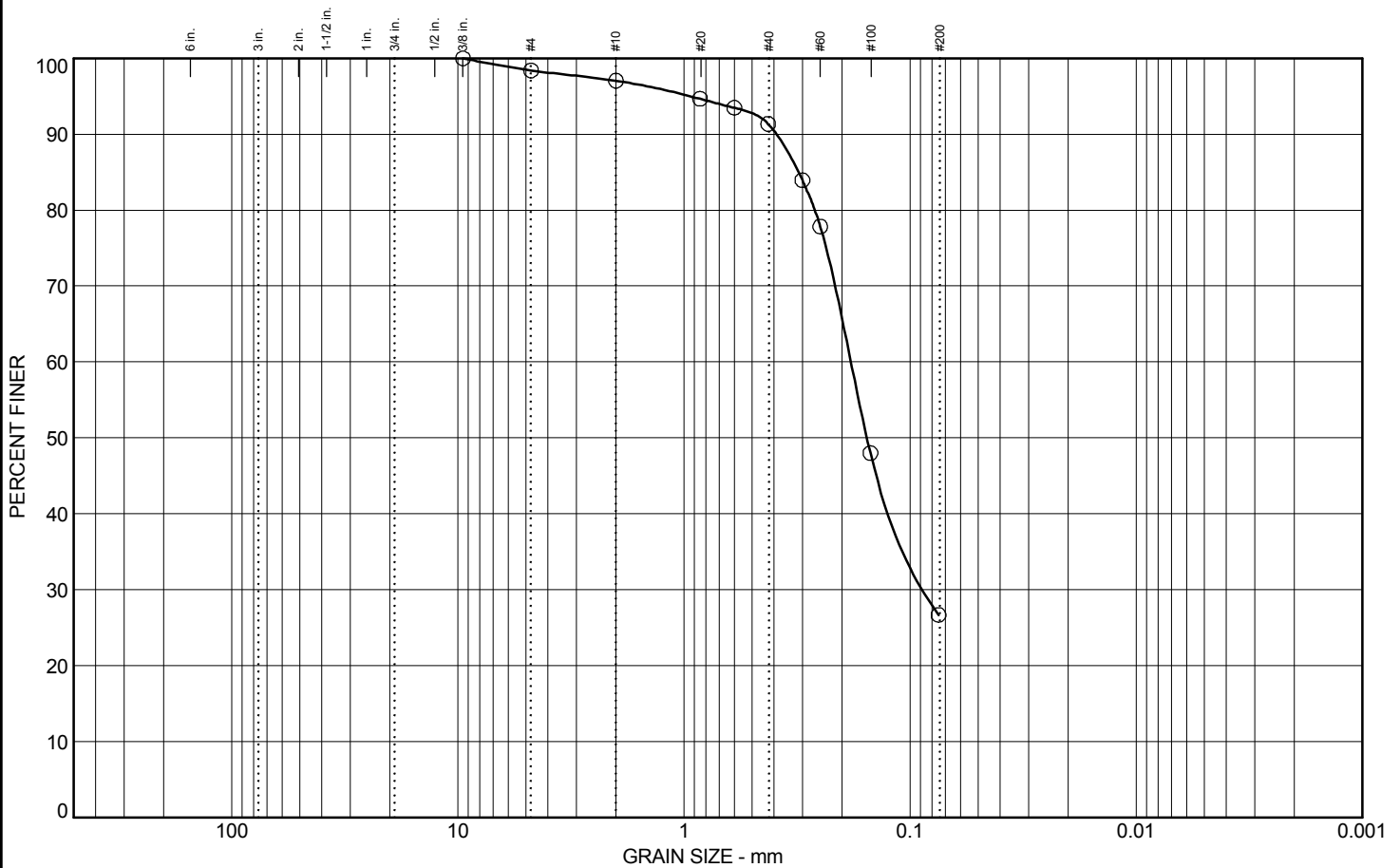
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	2.9	5.9	64.5	26.7	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	98.4		
2	97.1		
0.85	94.7		
0.6	93.5		
0.425	91.4		
0.3	83.9		
0.25	77.8		
0.15	48.0		
0.075	26.7		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 19.0%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.315$

$D_{60} = 0.184$

$D_{50} = 0.155$

$D_{30} = 0.084$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 11

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 21' / 749.05'



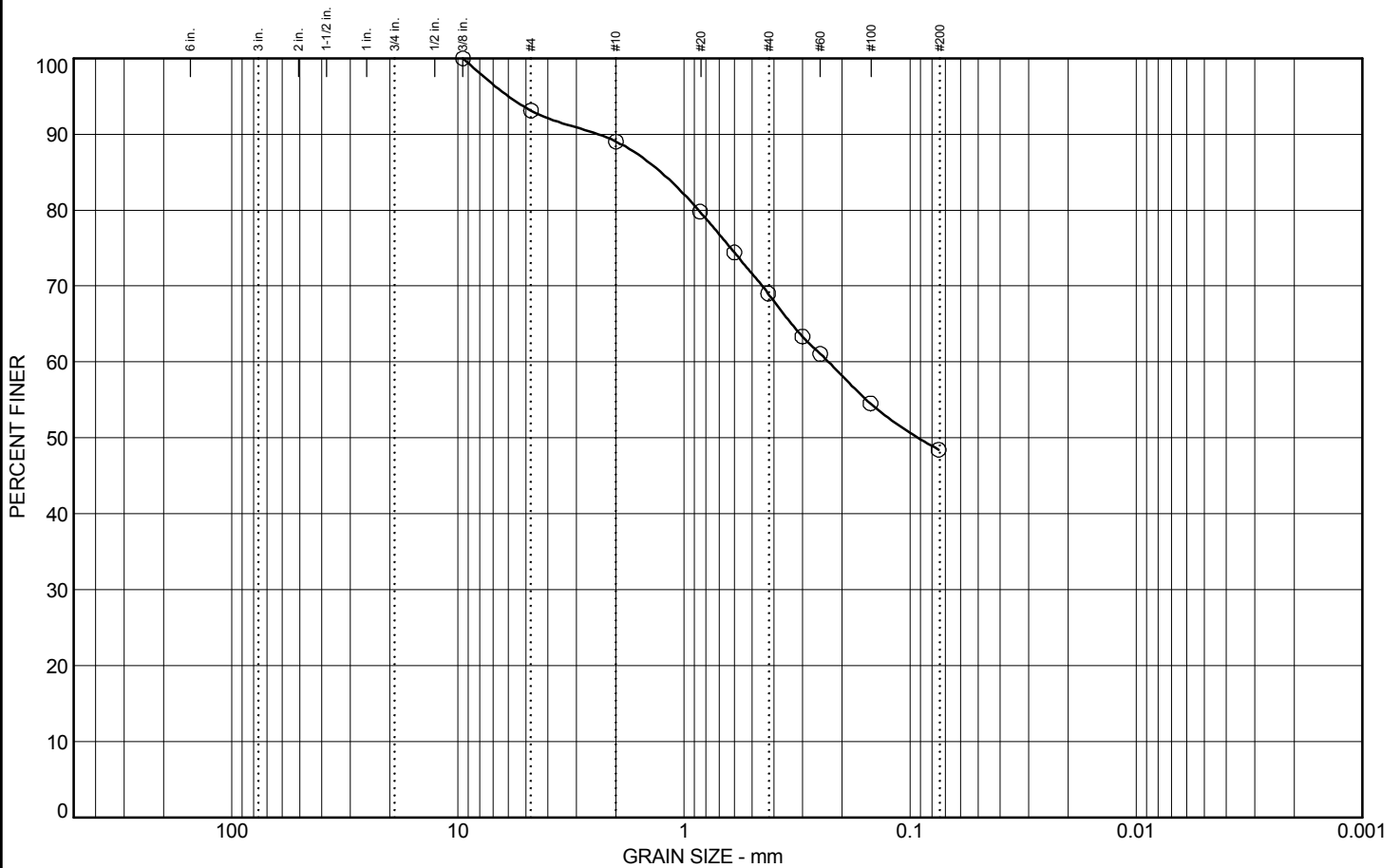
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	11.0	20.2	20.4	48.4	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	93.1		
2	89.0		
0.85	79.8		
0.6	74.4		
0.425	69.0		
0.3	63.3		
0.25	61.0		
0.15	54.5		
0.075	48.4		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 9.8%

Atterberg Limits

LL= 24

PL= 13

PI= 11

Coefficients

$D_{85} = 1.376$

$D_{60} = 0.23$

$D_{50} = 0.09$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 3

Sample No.: 15

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 33.5' / 736.55'



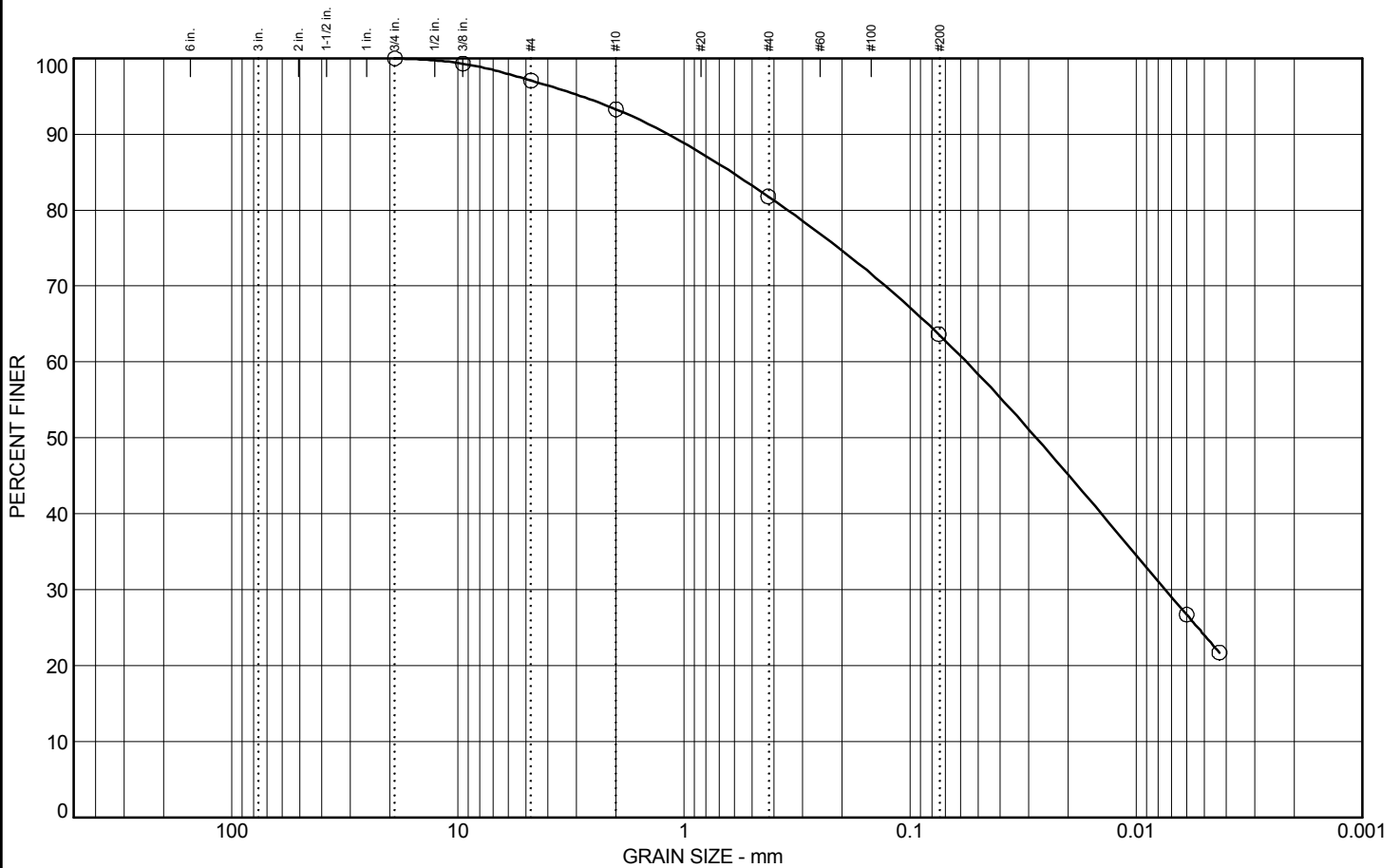
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.7	11.6	18.0	39.7	24.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.3		
4.75	97.1		
2	93.3		
0.425	81.8		
0.075	63.7		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.5%

Atterberg Limits

LL= 25

PL= 15

PI= 10

Coefficients

$D_{85} = 0.655$

$D_{60} = 0.058$

$D_{50} = 0.029$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 20

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 58.5' / 711.55'



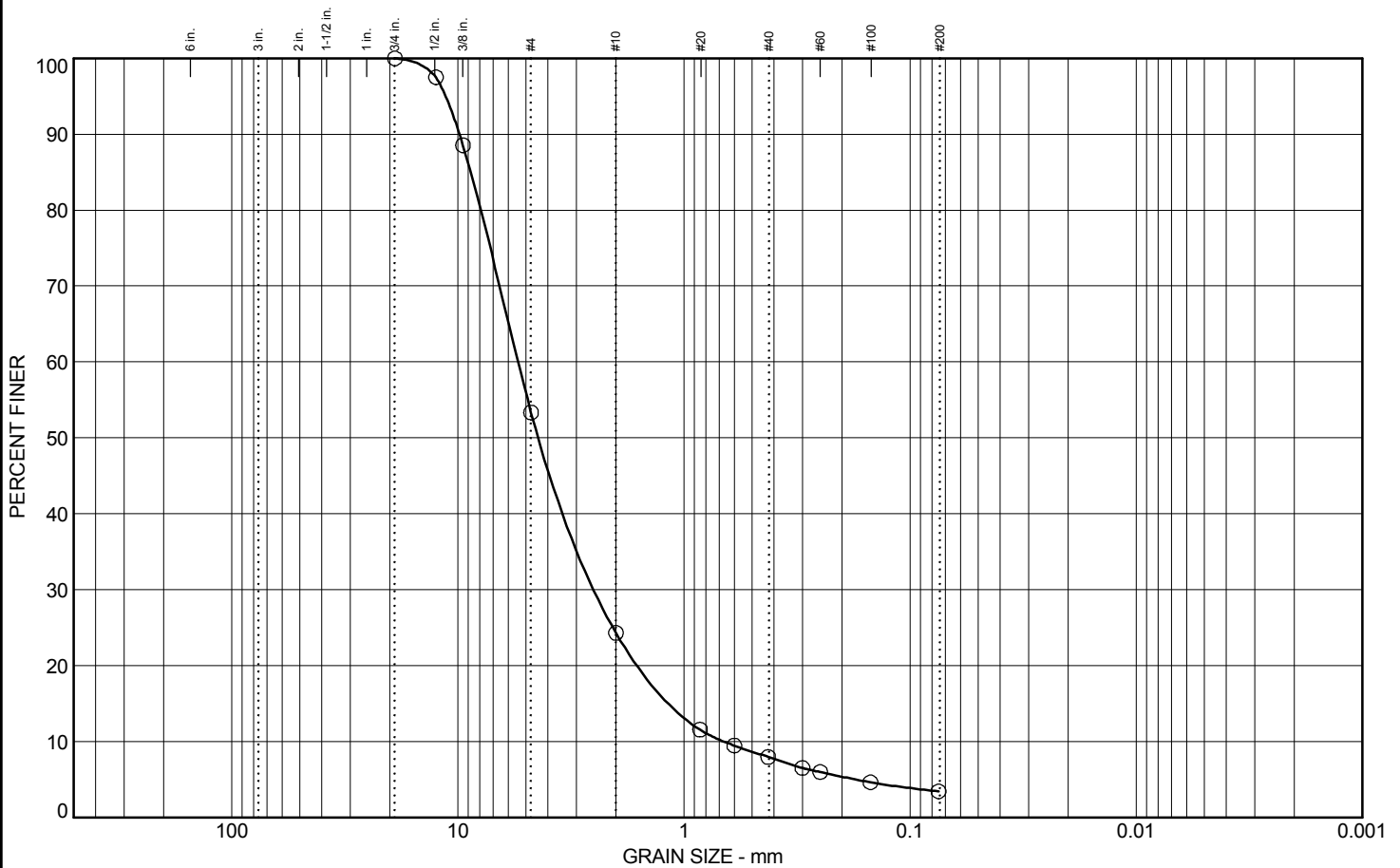
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	75.7	16.4	4.5	3.4	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	97.5		
9.5	88.6		
4.75	53.3		
2	24.3		
0.85	11.5		
0.6	9.4		
0.425	7.9		
0.3	6.5		
0.25	6.0		
0.15	4.6		
0.075	3.4		

* (no specification provided)

Soil Description

medium to coarse sand, fine gravel

General Characteristics

Moisture Content = 12.7%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 8.858$

$D_{60} = 5.416$

$D_{50} = 4.301$

$D_{30} = 2.371$

$D_{15} = 1.072$

$D_{10} = 0.658$

$C_u = 8.23$

$C_c = 1.58$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 21

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 63.5' / 706.55'



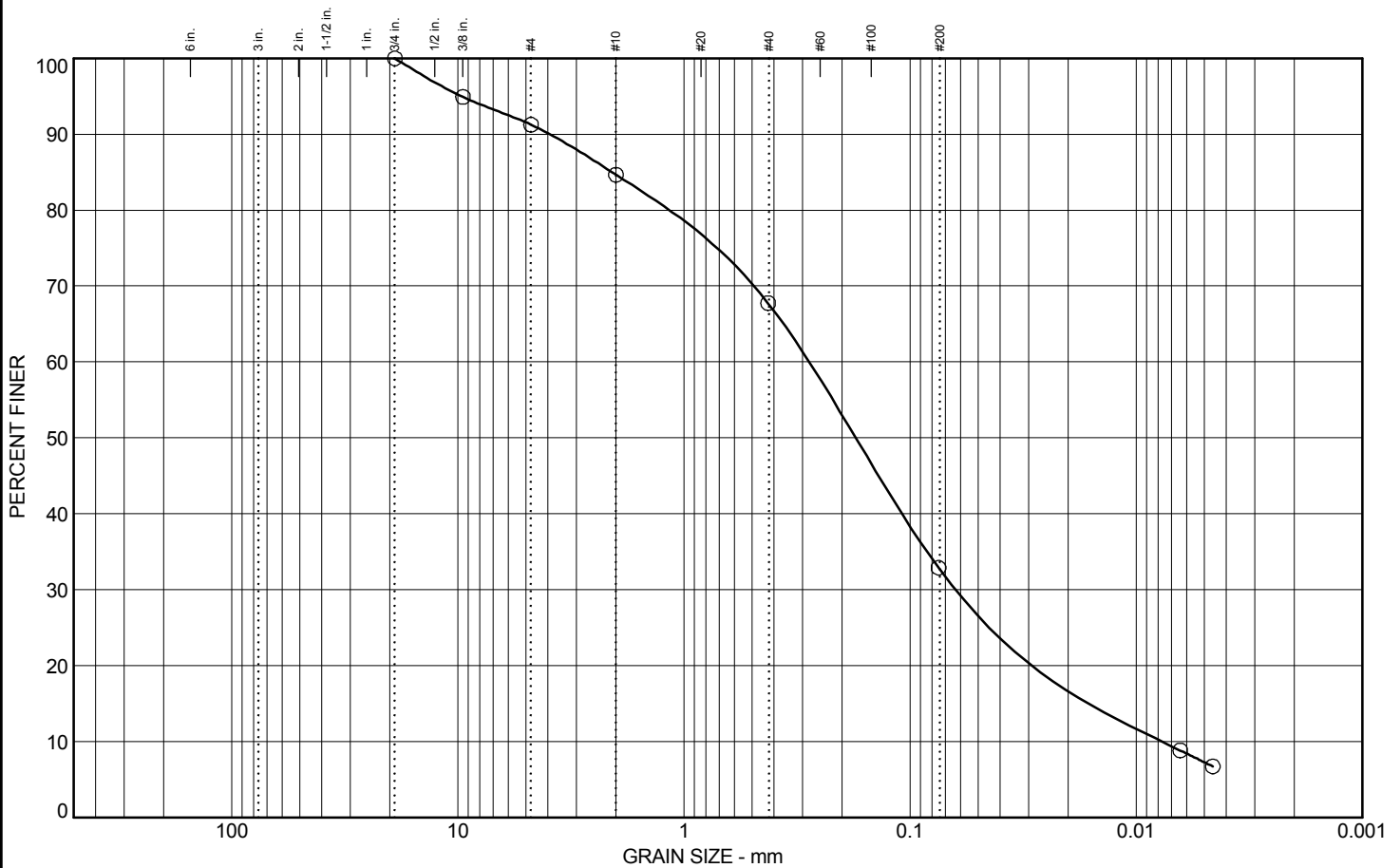
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	15.3	17.1	34.6	25.6	7.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.9		
4.75	91.3		
2	84.7		
0.425	67.8		
0.075	32.9		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity silt

General Characteristics

Moisture Content = 14.2%

Atterberg Limits

LL= 16

PL= 14

PI= 2

Coefficients

$D_{85} = 2.091$

$D_{60} = 0.289$

$D_{50} = 0.176$

$D_{30} = 0.056$

$D_{15} = 0.012$

$D_{10} = 0.007$

$C_u = 39.95$

$C_c = 1.50$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 22

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 68.5' / 701.55'



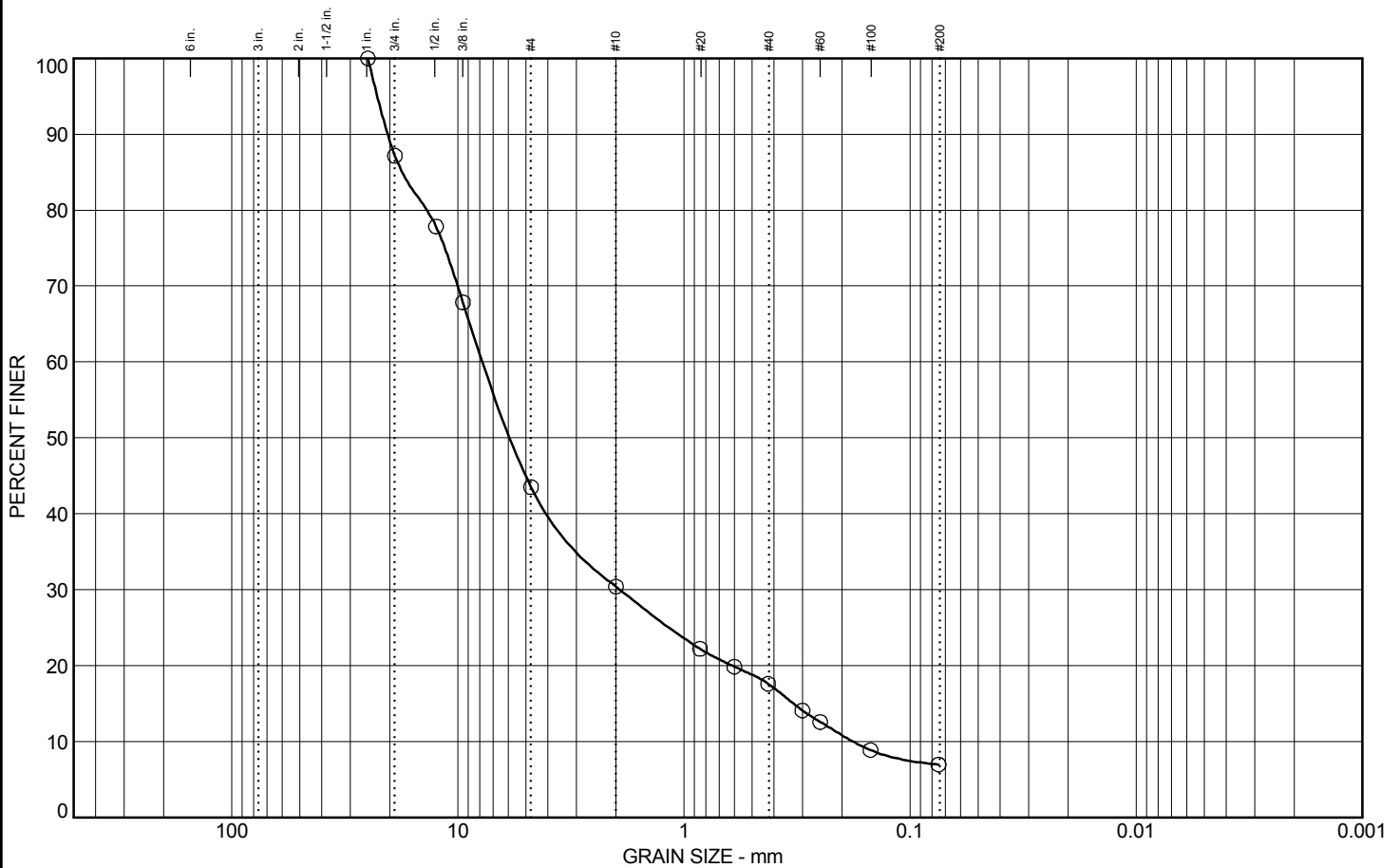
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	12.8	56.8	12.9	10.5	6.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	87.2		
12.5	77.8		
9.5	67.8		
4.75	43.5		
2	30.4		
0.85	22.2		
0.6	19.8		
0.425	17.6		
0.3	14.1		
0.25	12.6		
0.15	8.9		
0.075	6.9		

* (no specification provided)

Soil Description

General Characteristics

Moisture Content = 8.9%

Atterberg Limits

LL =

PL =

PI = Non-plastic

Coefficients

$D_{85} = 17.243$

$D_{60} = 7.599$

$D_{50} = 5.716$

$D_{30} = 1.921$

$D_{15} = 0.329$

$D_{10} = 0.176$

$C_u = 43.24$

$C_c = 2.76$

Classification

ODOT =

Remarks

Group Index =

Sample No.: 23

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 73.5' / 696.55'



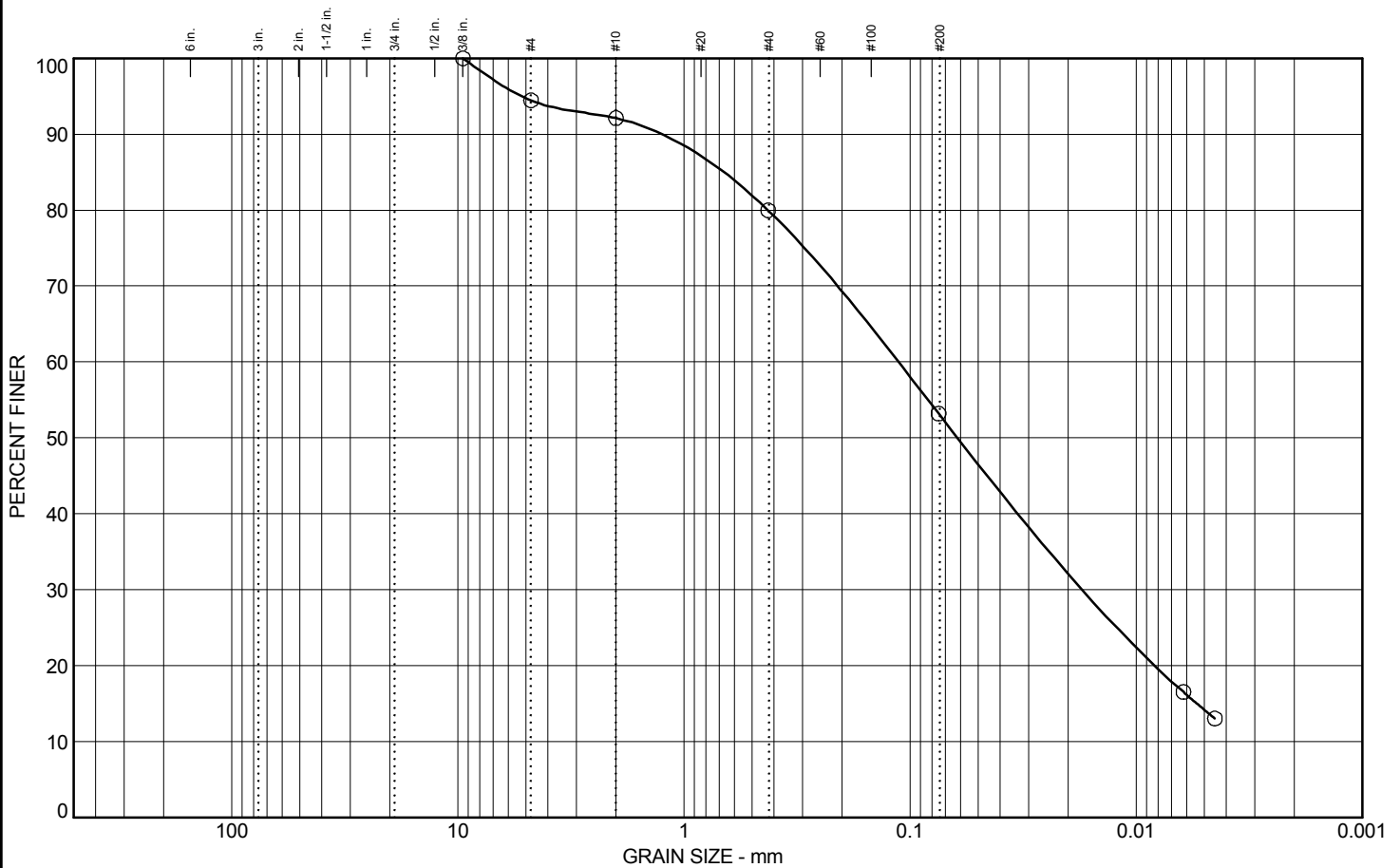
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	7.9	12.3	26.6	39.0	14.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	94.5		
2	92.1		
0.425	80.0		
0.075	53.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.2%

Atterberg Limits

LL= 22

PL= 14

PI= 8

Coefficients

$D_{85} = 0.806$

$D_{60} = 0.117$

$D_{50} = 0.06$

$D_{30} = 0.016$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 25

Source of Sample: B-046

Location: -

Date:

Depth / Elev: 83.5' / 686.55'



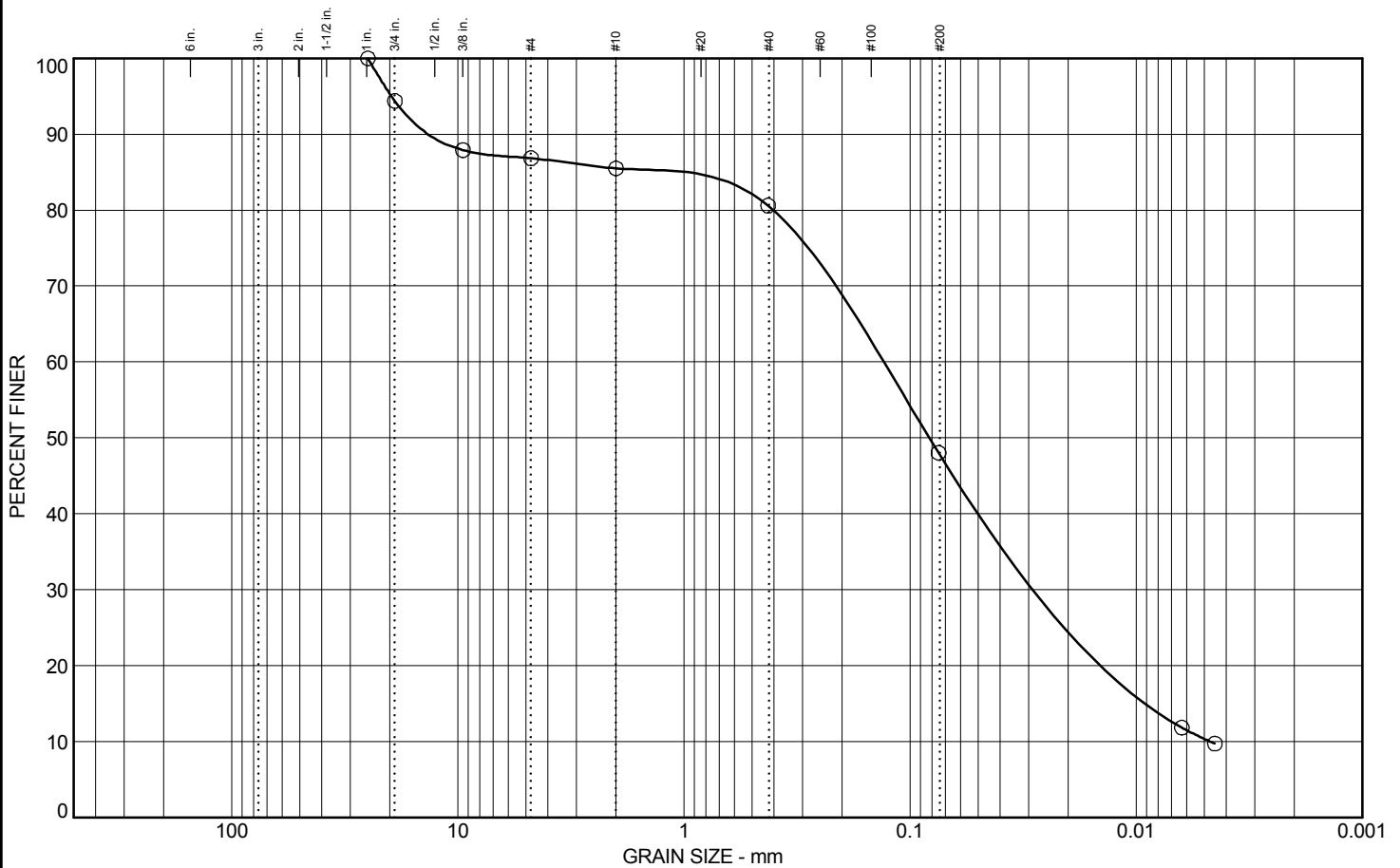
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	5.6	8.9	5.1	32.3	37.7	10.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	94.4		
9.5	87.9		
4.75	86.8		
2	85.5		
0.425	80.6		
0.075	48.0		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 11.7%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 1.707$

$D_{60} = 0.142$

$D_{50} = 0.083$

$D_{30} = 0.022$

$D_{15} = 0.008$

$D_{10} = 0.005$

$C_u = 30.06$

$C_c = 0.71$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 1

Source of Sample: B-047

Location: -

Date:

Depth / Elev: 1' / 752.32'



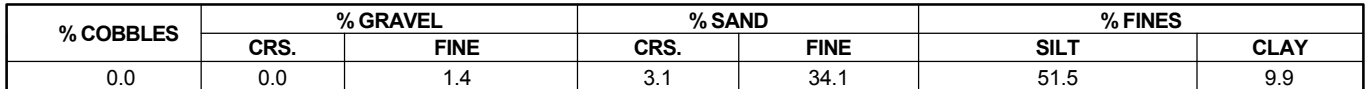
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

GRAIN SIZE II - DLZ MOD - GINT STD US LAB.GDT - 5/22/09 10:32 - S:\DEPT\GEOTECHNICAL\GINT\PROJECTS\0221-1004-01.GPJ

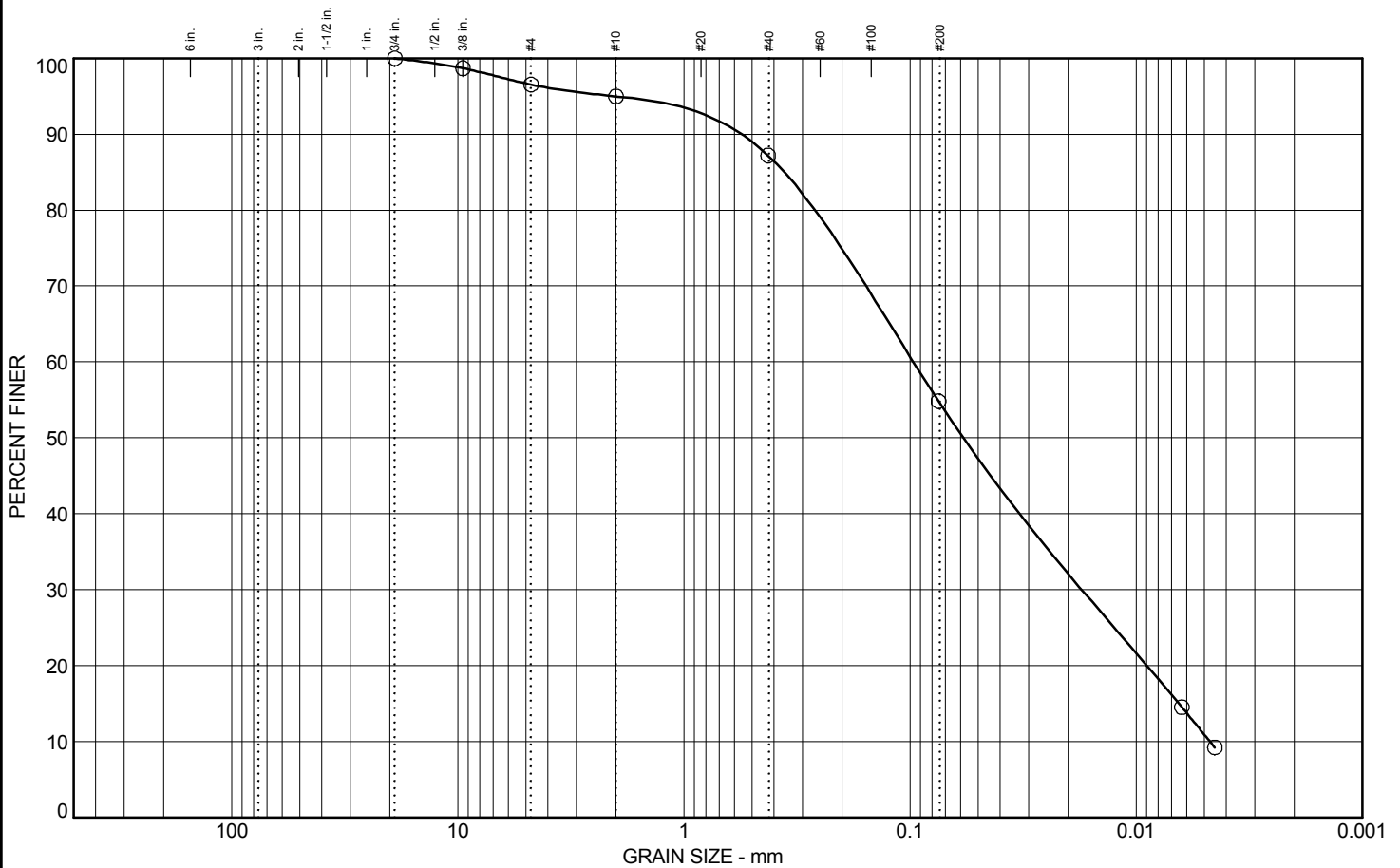


<u>Soil Description</u>		
non-plastic silt, fine sand		
<u>General Characteristics</u>		
Moisture Content = 16.4%		
<u>Atterberg Limits</u>		
LL=	PL=	PI= Non-plastic
<u>Coefficients</u>		
$D_{85} = 0.247$	$D_{60} = 0.07$	$D_{50} = 0.042$
$D_{30} = 0.016$	$D_{15} = 0.007$	$D_{10} = 0.005$
$C_u = 13.87$	$C_c = 0.69$	
<u>Classification</u>		
ODOT = A-4b		
<u>Remarks</u>		
Group Index = 6		



Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	5.0	8.0	32.2	44.0	10.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.7		
4.75	96.5		
2	95.0		
0.425	87.2		
0.075	54.8		

* (no specification provided)

Soil Description

non-plastic silt, fine sand

General Characteristics

Moisture Content = 12.0%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.378$

$D_{60} = 0.099$

$D_{50} = 0.056$

$D_{30} = 0.016$

$D_{15} = 0.006$

$D_{10} = 0.005$

$C_u = 20.91$

$C_c = 0.57$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 3

Source of Sample: B-047

Location: -

Date:

Depth / Elev: 4' / 749.32'



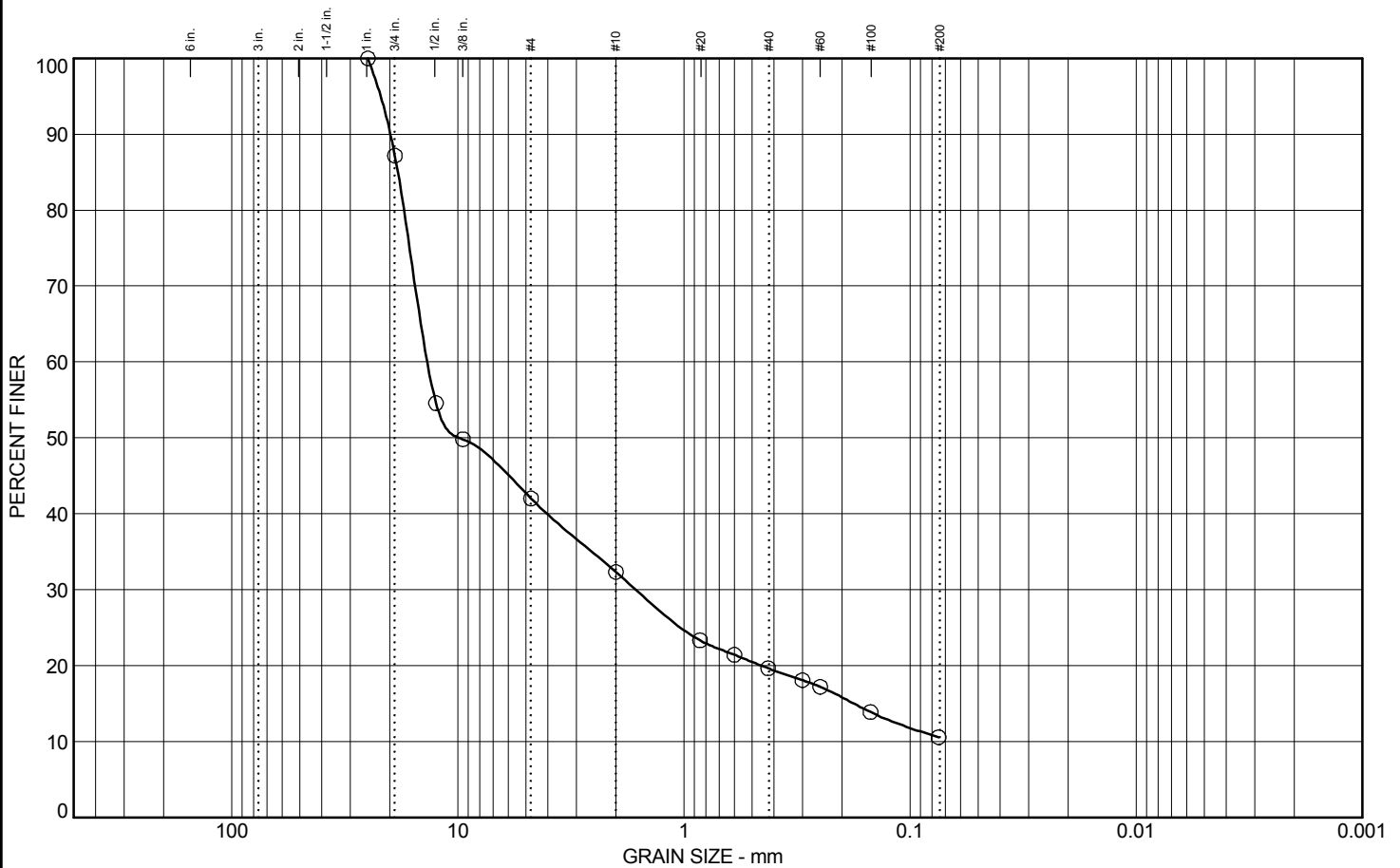
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	12.8	54.9	12.7	9.0	10.5	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	87.2		
12.5	54.6		
9.5	49.8		
4.75	42.0		
2	32.3		
0.85	23.3		
0.6	21.4		
0.425	19.6		
0.3	18.1		
0.25	17.2		
0.15	13.9		
0.075	10.5		

* (no specification provided)

Soil Description

fine gravel, non-plastic silt, medium to coarse sand

General Characteristics

Moisture Content = 5.7%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 18.477$
 $D_{30} = 1.606$
 $C_u = 200.49$
 $D_{60} = 13.404$
 $D_{15} = 0.179$
 $C_c = 2.88$
 $D_{50} = 9.606$
 $D_{10} =$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 4B

Location: -

Source of Sample: B-047

Date:

Depth / Elev: 6.2' / 747.12'



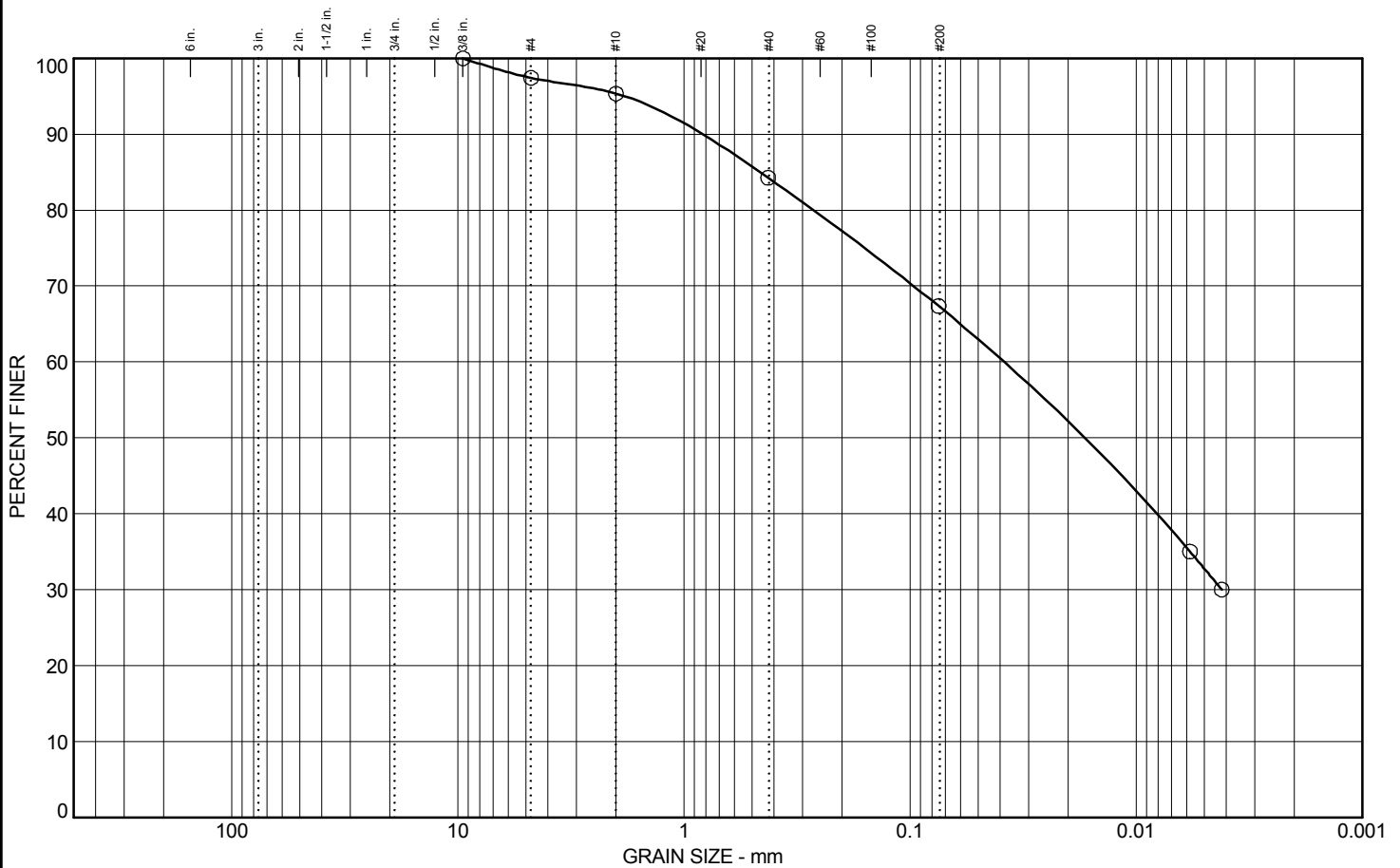
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	4.6	11.2	16.8	34.7	32.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	97.4		
2	95.4		
0.425	84.3		
0.075	67.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.4%

Atterberg Limits

LL= 27

PL= 16

PI= 11

Coefficients

$D_{85} = 0.472$

$D_{60} = 0.042$

$D_{50} = 0.019$

$D_{30} = 0.004$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 7

Sample No.: 1

Source of Sample: B-049

Location: -

Date:

Depth / Elev: 1' / 763.96'



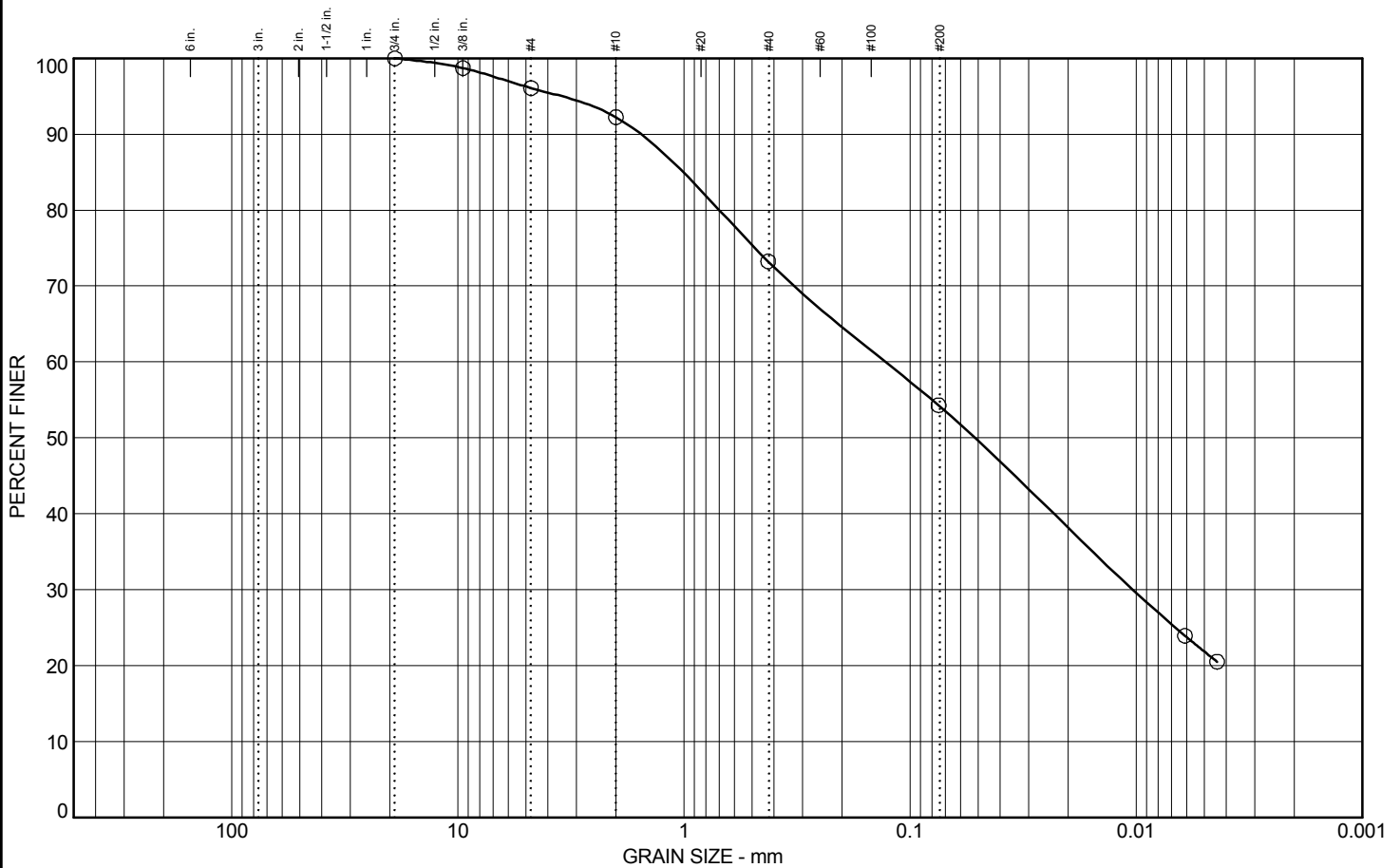
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	7.8	19.1	18.8	32.5	21.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.7		
4.75	96.1		
2	92.2		
0.425	73.2		
0.075	54.3		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.4%

Atterberg Limits

LL = 27

PL = 17

PI = 10

Coefficients

$D_{85} = 1.108$

$D_{60} = 0.126$

$D_{50} = 0.053$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 2

Source of Sample: B-049

Location: -

Date:

Depth / Elev: 3.5' / 761.46'



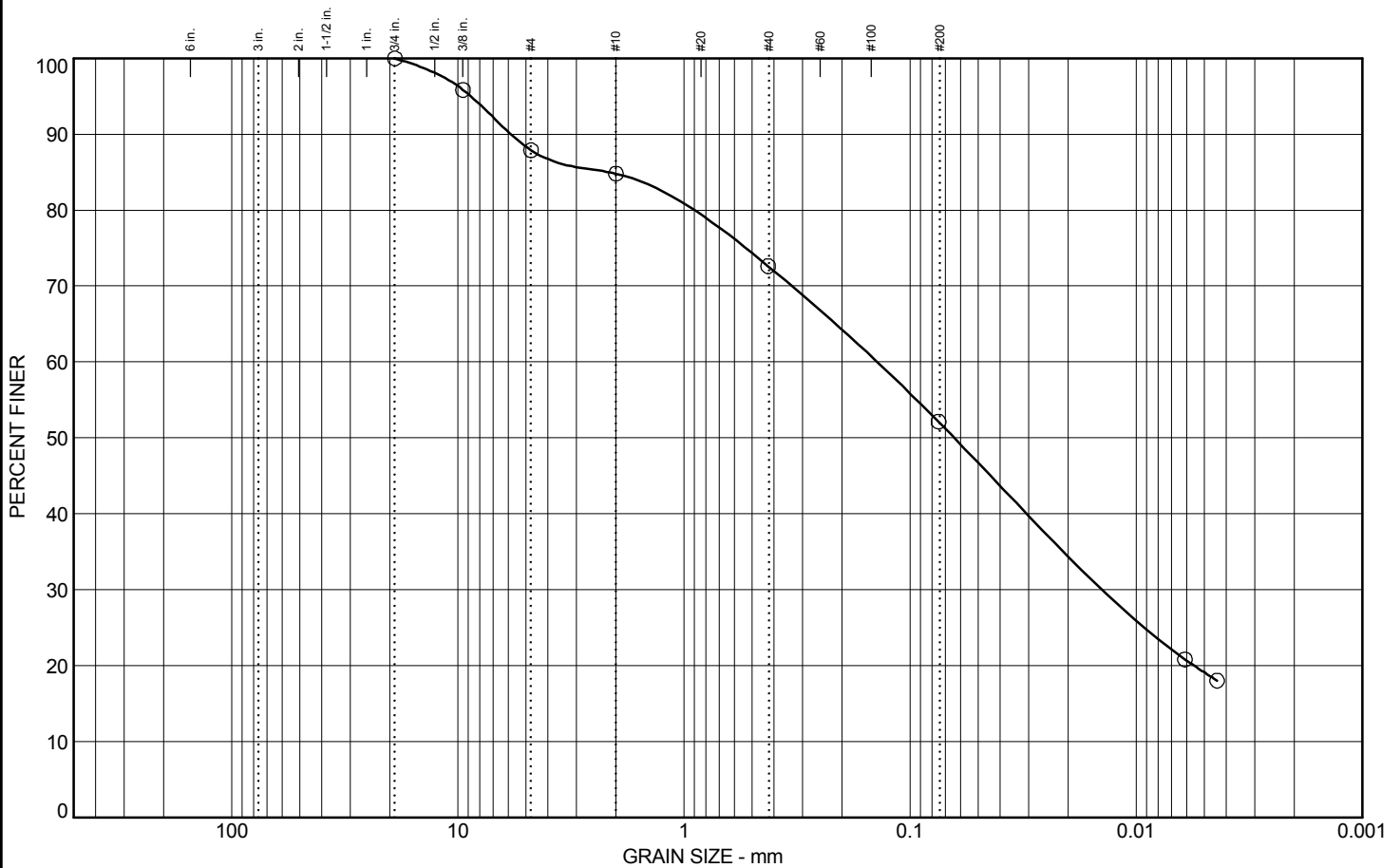
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	15.2	12.3	20.4	33.0	19.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.8		
4.75	87.9		
2	84.8		
0.425	72.6		
0.075	52.1		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.0%

Atterberg Limits

LL= 23

PL= 15

PI= 8

Coefficients

$D_{85} = 2.113$

$D_{60} = 0.146$

$D_{50} = 0.063$

$D_{30} = 0.013$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 2

Source of Sample: B-050

Date: 3/23/09

Location: -

Depth / Elev: 3.5' / 762.81'



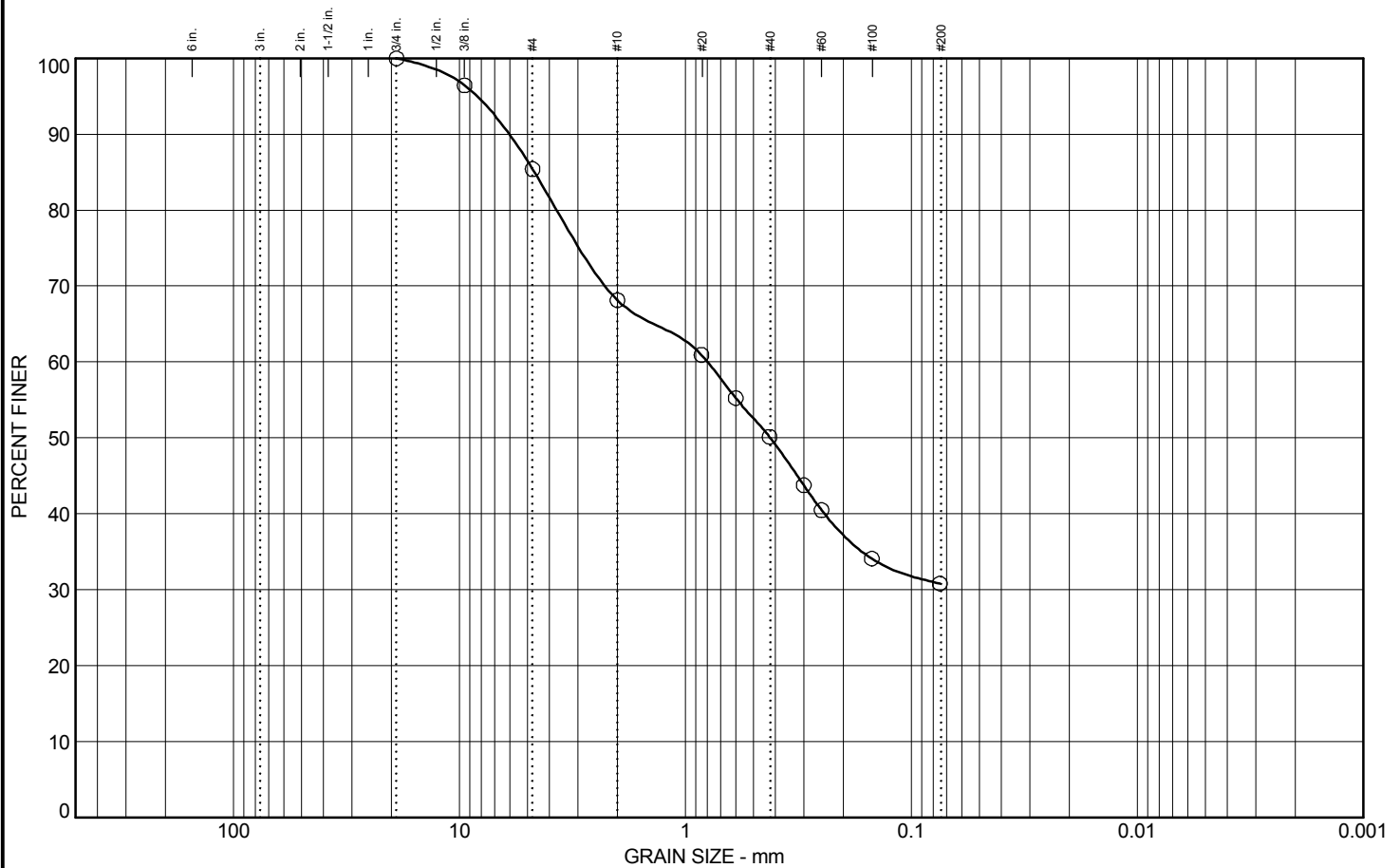
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	31.9	18.2	19.1	30.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.4		
4.75	85.4		
2	68.1		
0.85	60.9		
0.6	55.2		
0.425	50.1		
0.3	43.8		
0.25	40.5		
0.15	34.1		
0.075	30.8		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 6.0%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 4.657$
 $D_{30} =$
 $C_u =$
 $D_{60} = 0.803$
 $D_{15} =$
 $C_c =$
 $D_{50} = 0.422$
 $D_{10} =$

Classification

ODOT = A-2-4

Remarks

Group Index = 0

Sample No.: 4
Location: -

Source of Sample: B-050

Date: 3/23/09
Depth / Elev: 8.5' / 757.81'



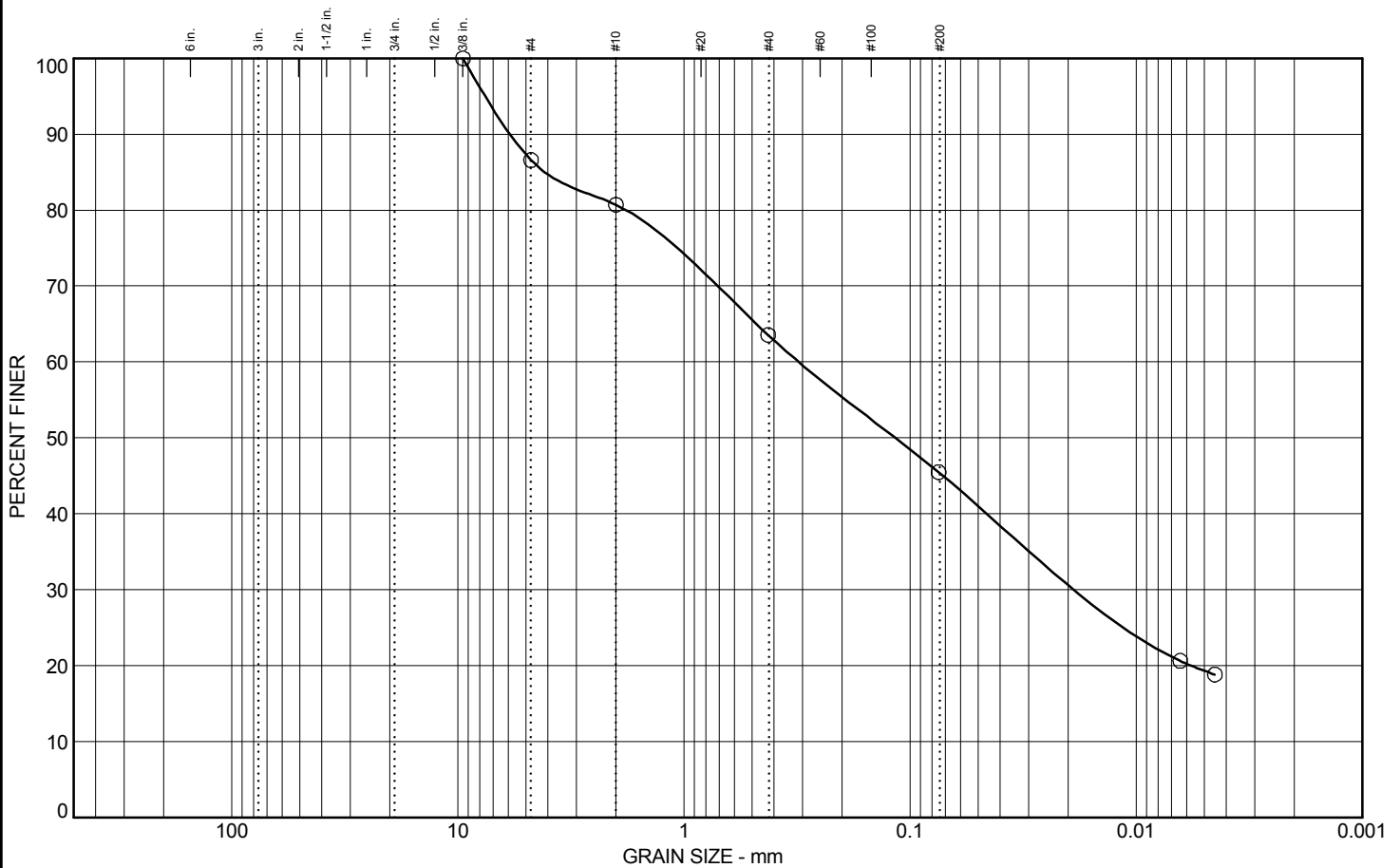
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	19.3	17.3	18.0	26.1	19.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	86.6		
2	80.7		
0.425	63.6		
0.075	45.5		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity silt

General Characteristics

Moisture Content = 0.6%

Atterberg Limits

LL= 20

PL= 17

PI= 3

Coefficients

$D_{85} = 3.757$

$D_{60} = 0.302$

$D_{50} = 0.116$

$D_{30} = 0.016$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Additional sample was obtained from S-4 for atterberg limit (PI)

Sample No.: 5

Source of Sample: B-050

Location: -

Date: 3/23/09

Depth / Elev: 11' / 755.31'



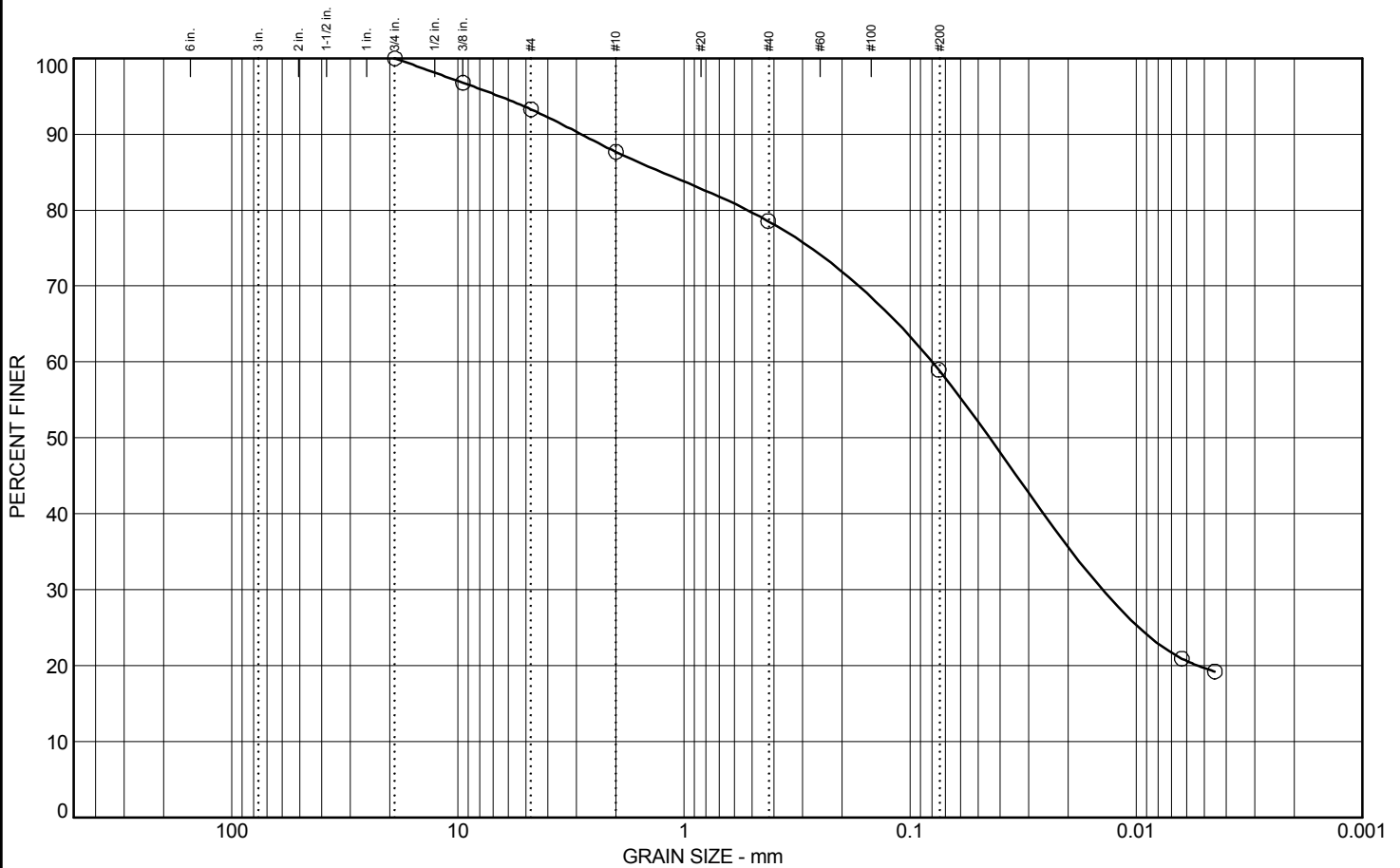
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.3	9.3	19.5	39.2	19.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.8		
4.75	93.3		
2	87.7		
0.425	78.6		
0.075	59.0		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.5%

Atterberg Limits

LL = 18

PL = 13

PI = 5

Coefficients

$D_{85} = 1.269$

$D_{60} = 0.082$

$D_{50} = 0.042$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 6

Source of Sample: B-050

Location: -

Date: 3/23/09

Depth / Elev: 13.5' / 752.81'



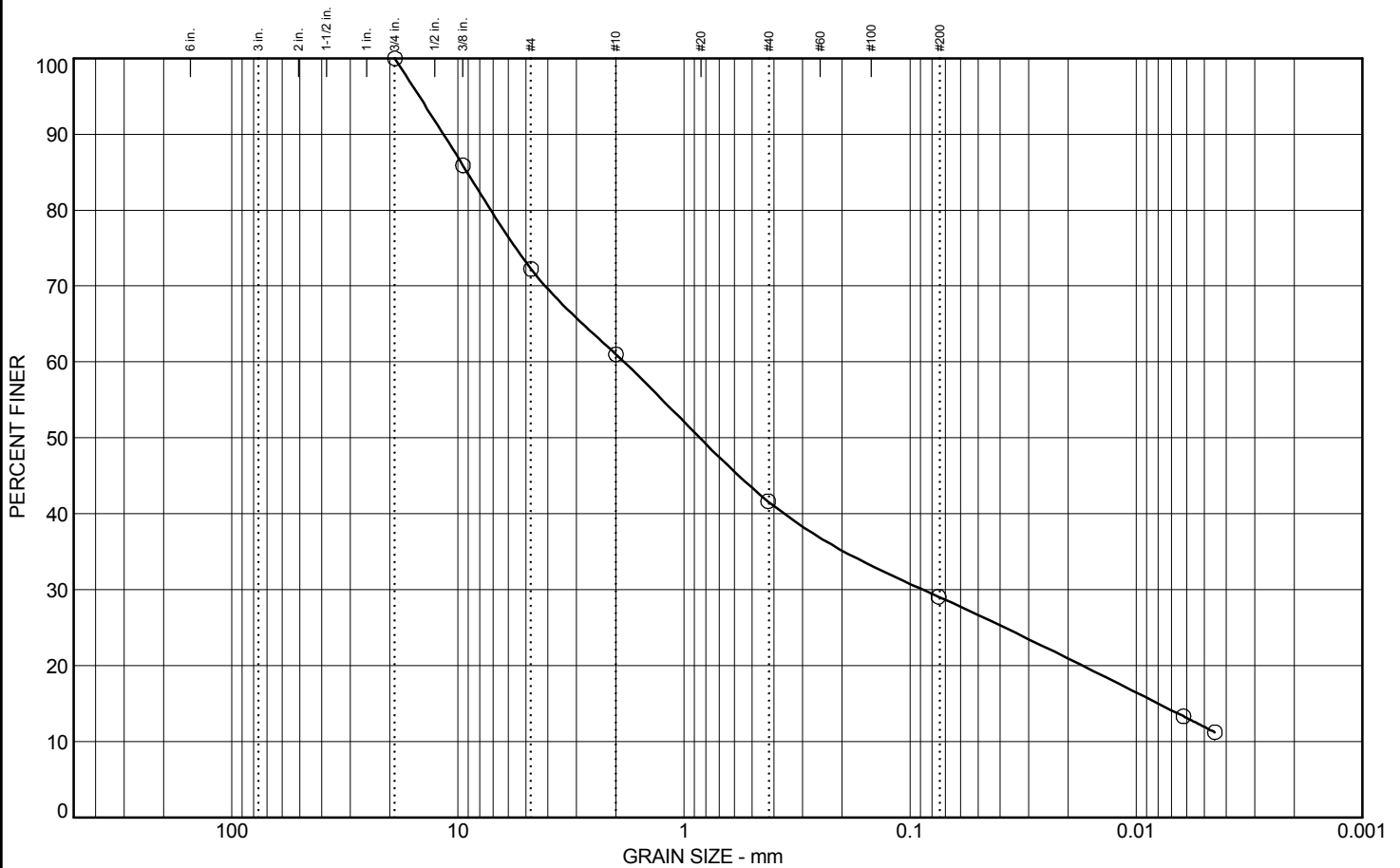
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	39.0	19.4	12.5	17.2	11.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	85.9		
4.75	72.3		
2	61.0		
0.425	41.6		
0.075	29.1		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 8.9%

Atterberg Limits

LL= 28

PL= 18

PI= 10

Coefficients

$D_{85} = 9.078$

$D_{60} = 1.846$

$D_{50} = 0.83$

$D_{30} = 0.085$

$D_{15} = 0.008$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-2-4

Remarks

Group Index = 0

Sample No.: 1

Source of Sample: B-051-0

Date: 4/29/09

Location: -

Depth / Elev: 1' / 794.06'



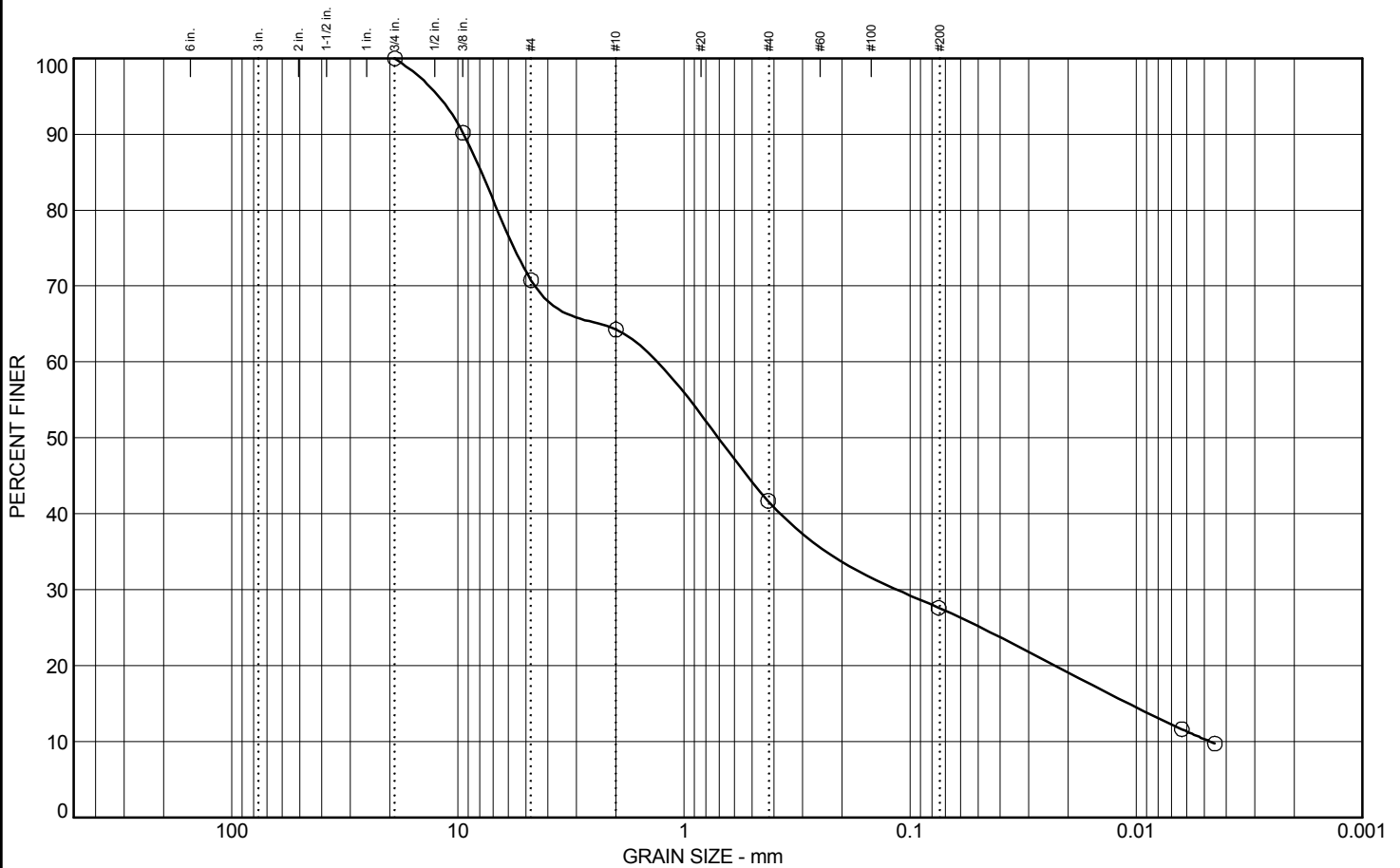
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	35.7	22.6	14.0	17.3	10.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	90.2		
4.75	70.8		
2	64.3		
0.425	41.7		
0.075	27.6		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 11.4%

Atterberg Limits

LL= 26

PL= 18

PI= 8

Coefficients

$D_{85} = 7.895$

$D_{60} = 1.494$

$D_{50} = 0.752$

$D_{30} = 0.101$

$D_{15} = 0.011$

$D_{10} = 0.005$

$C_u = 314.72$

$C_c = 1.43$

Classification

ODOT = A-2-4

Remarks

Group Index = 0

Sample No.: 2

Source of Sample: B-051-0

Location: -

Date: 4/29/09

Depth / Elev: 2.5' / 792.56'



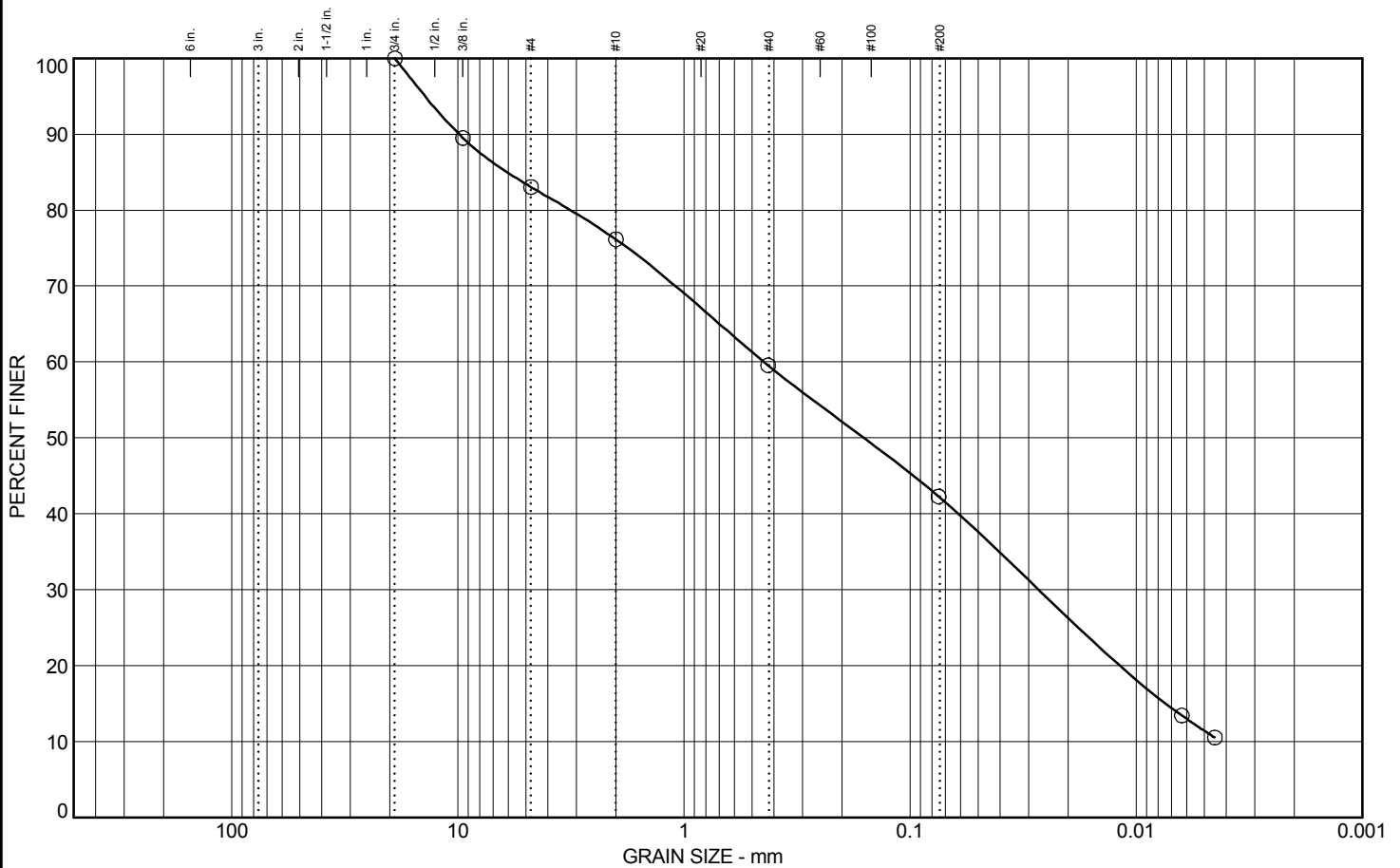
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	23.8	16.7	17.2	30.9	11.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	89.5		
4.75	83.0		
2	76.2		
0.425	59.6		
0.075	42.3		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 11.4%

Atterberg Limits

LL= 29

PL= 18

PI= 11

Coefficients

$D_{85} = 5.859$

$D_{60} = 0.443$

$D_{50} = 0.163$

$D_{30} = 0.026$

$D_{15} = 0.007$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 2

Sample No.: 3

Source of Sample: B-051-0

Location: -

Date: 4/29/09

Depth / Elev: 4' / 791.06'



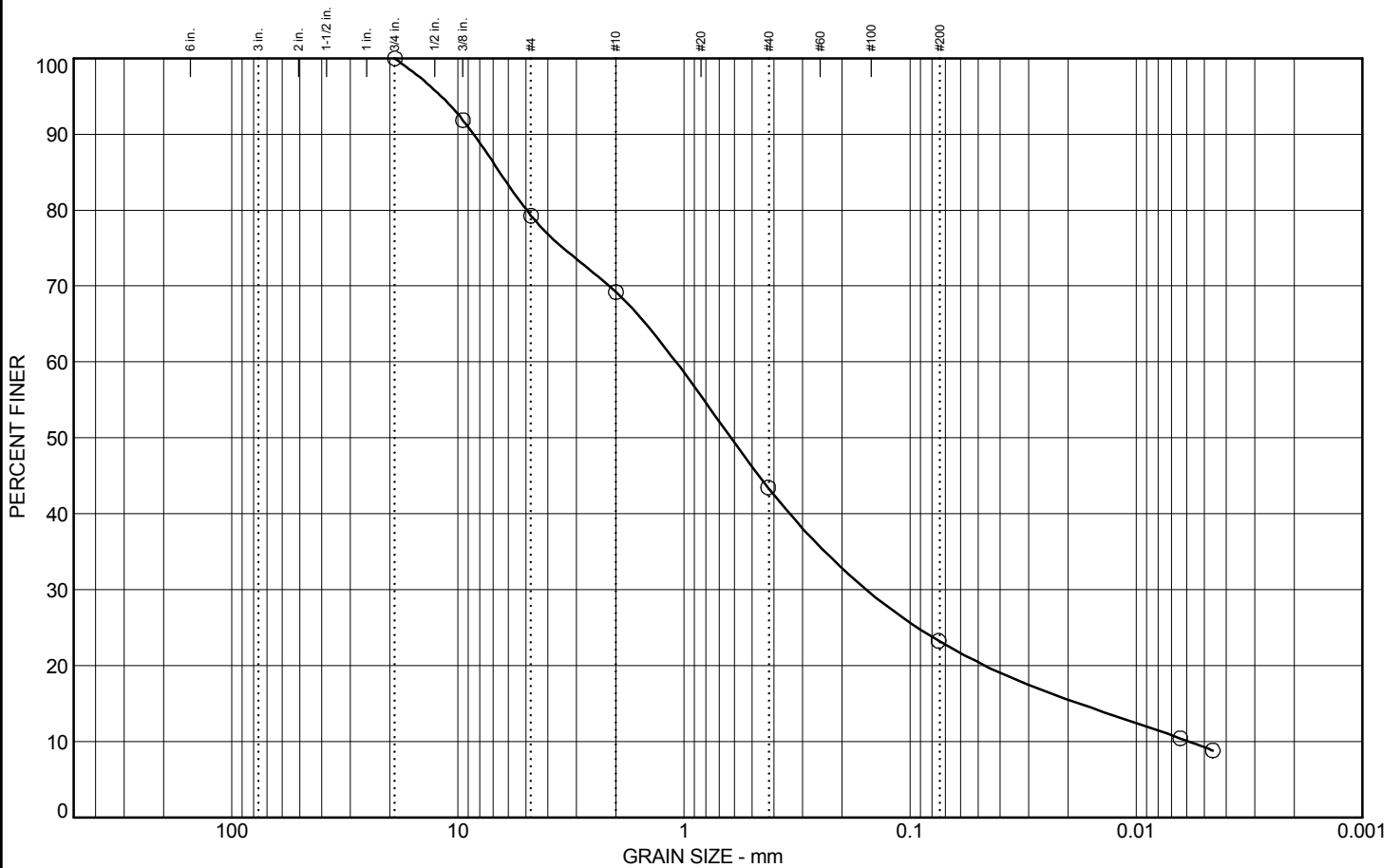
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	30.8	25.9	20.1	14.0	9.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	91.9		
4.75	79.3		
2	69.2		
0.425	43.5		
0.075	23.2		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 6.8%

Atterberg Limits

LL= 19

PL= 15

PI= 4

Coefficients

$D_{85} = 6.514$

$D_{60} = 1.15$

$D_{50} = 0.63$

$D_{30} = 0.134$

$D_{15} = 0.015$

$D_{10} = 0.006$

$C_u = 195.15$

$C_c = 2.65$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 1

Source of Sample: B-051-1

Location: -

Date: 4/24/09

Depth / Elev: 1' / 793.84'



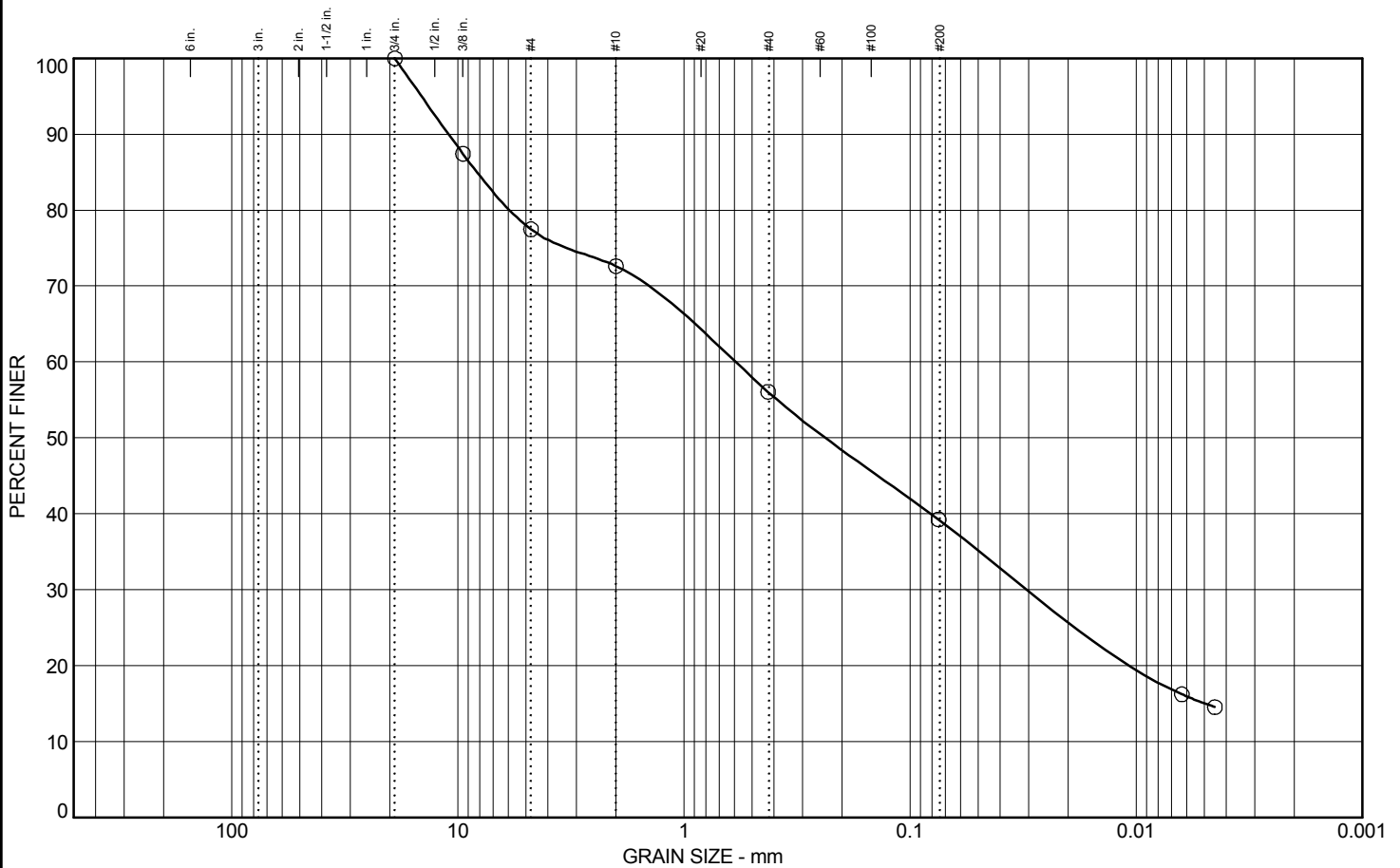
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	27.4	16.7	16.7	24.2	15.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	87.4		
4.75	77.5		
2	72.6		
0.425	56.1		
0.075	39.2		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 19.7%

Atterberg Limits

LL= 31

PL= 20

PI= 11

Coefficients

$D_{85} = 8.024$

$D_{60} = 0.615$

$D_{50} = 0.228$

$D_{30} = 0.028$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 1

Sample No.: 4

Source of Sample: B-051-1

Location: -

Date: 4/24/09

Depth / Elev: 8.5' / 786.34'



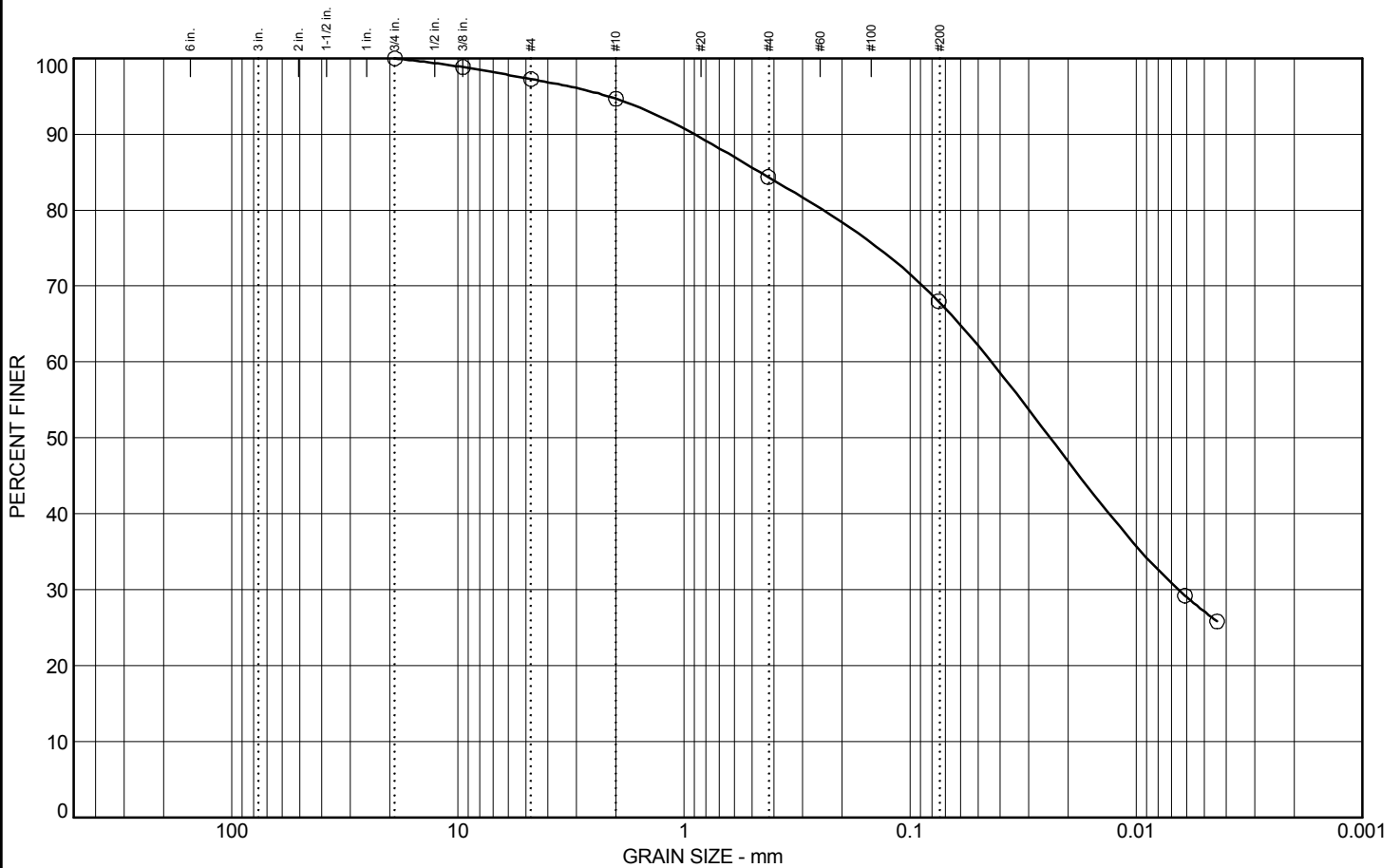
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	5.3	10.4	16.3	40.9	27.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.8		
4.75	97.3		
2	94.7		
0.425	84.4		
0.075	68.0		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 14.4%

Atterberg Limits

LL= 28

PL= 17

PI= 11

Coefficients

$D_{85} = 0.468$

$D_{60} = 0.045$

$D_{50} = 0.023$

$D_{30} = 0.006$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 7

Sample No.: 7

Source of Sample: B-051-1

Location: -

Date: 4/24/09

Depth / Elev: 16' / 778.84'



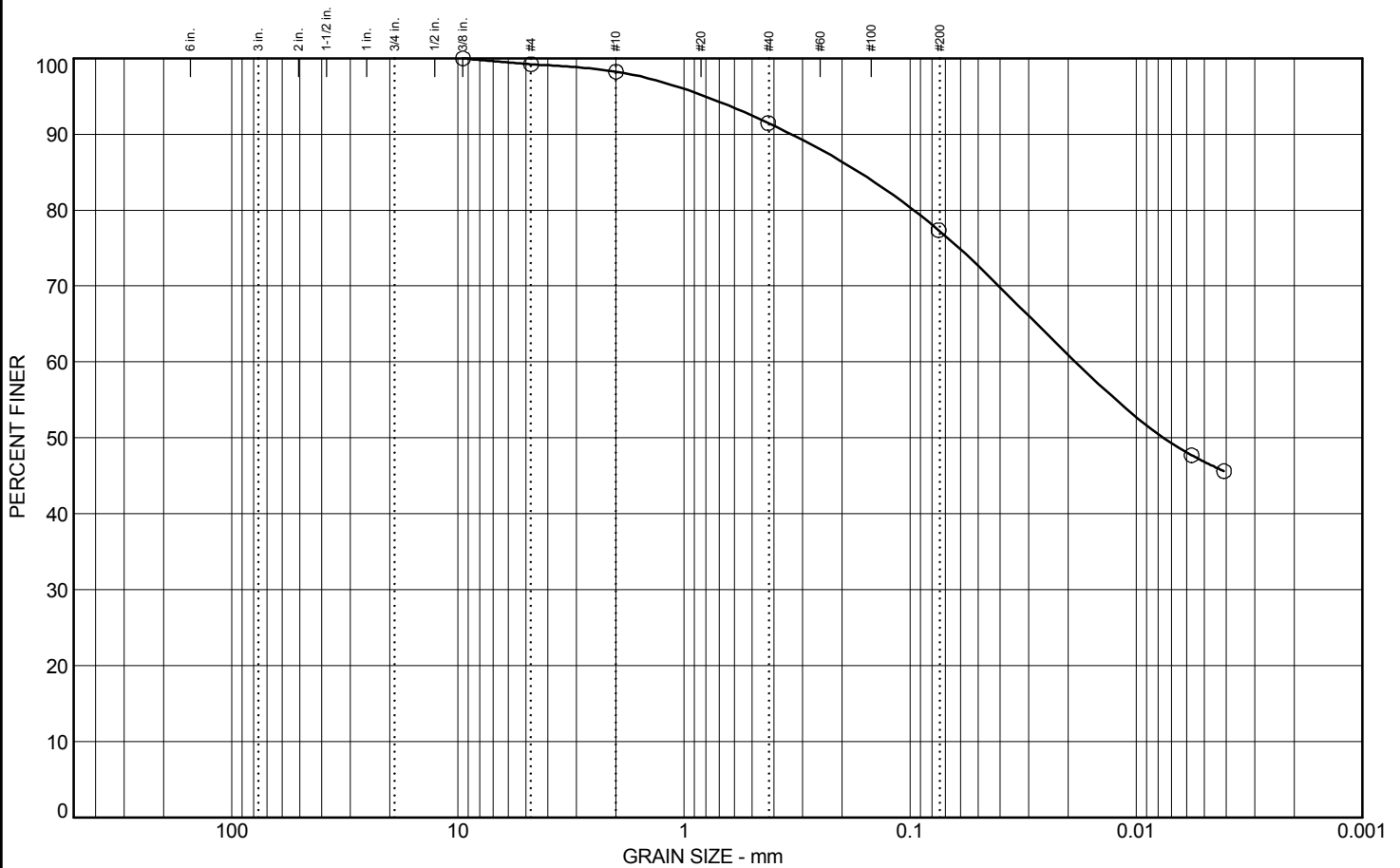
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	1.8	6.9	14.0	30.5	46.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	99.2		
2	98.2		
0.425	91.5		
0.075	77.4		

* (no specification provided)

Soil Description

moderate plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 19.6%

Atterberg Limits

LL = 41

PL = 18

PI = 23

Coefficients

$D_{85} = 0.192$

$D_{60} = 0.017$

$D_{50} = 0.007$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-7-6

Remarks

Group Index = 13

Sample No.: 3

Source of Sample: B-052

Location: -

Date: 4/24/09

Depth / Elev: 6' / 780.36'



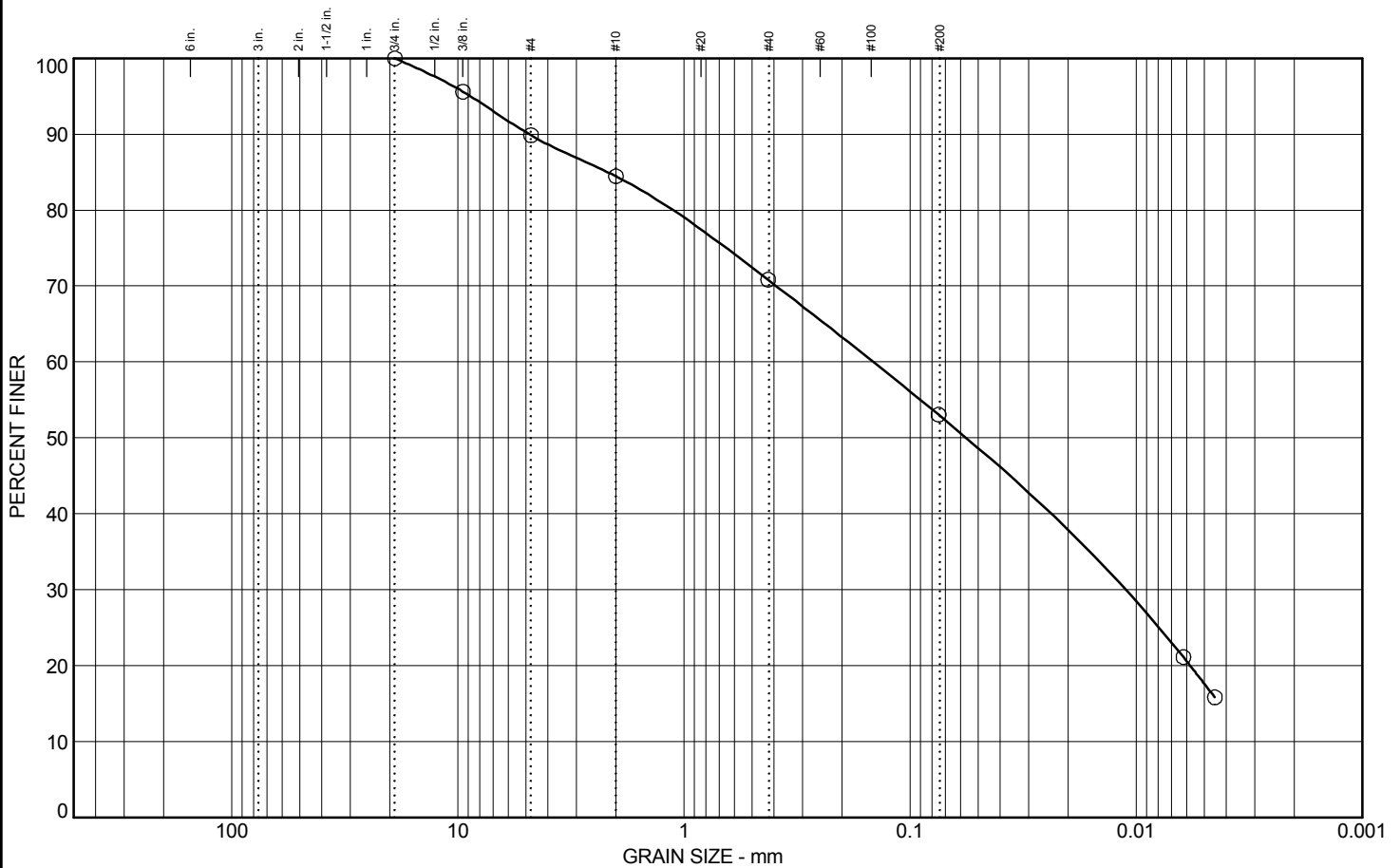
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	15.6	13.7	17.7	35.5	17.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.6		
4.75	89.9		
2	84.4		
0.425	70.8		
0.075	53.0		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.3%

Atterberg Limits

LL= 20

PL= 14

PI= 6

Coefficients

$D_{85} = 2.184$

$D_{60} = 0.148$

$D_{50} = 0.059$

$D_{30} = 0.012$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 9

Source of Sample: B-052

Location: -

Date: 4/24/09

Depth / Elev: 21' / 765.36'



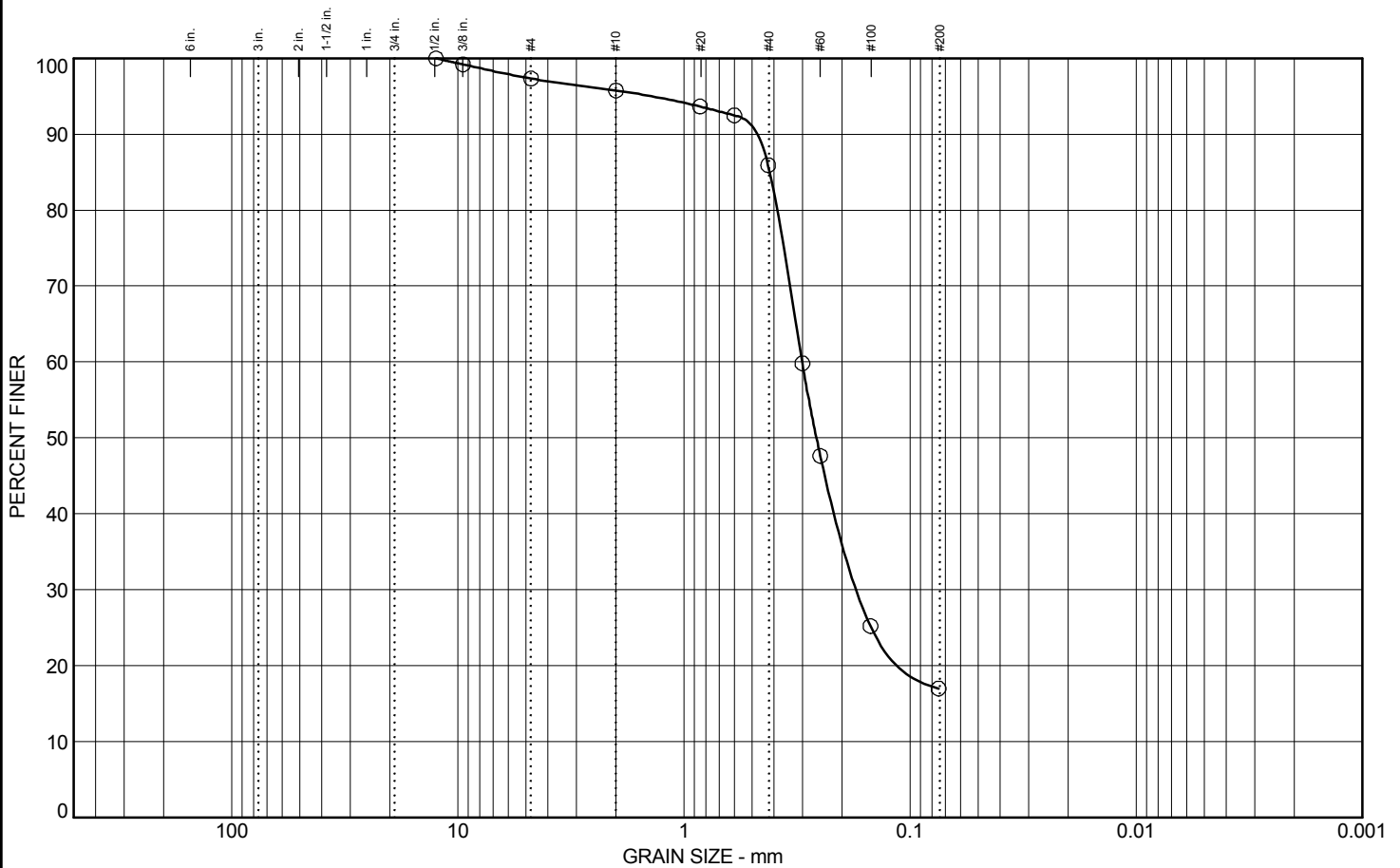
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	4.2	10.7	68.1	17.0	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	99.2		
4.75	97.3		
2	95.8		
0.85	93.6		
0.6	92.5		
0.425	85.9		
0.3	59.8		
0.25	47.6		
0.15	25.2		
0.075	17.0		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 5.4%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.42$

$D_{60} = 0.301$

$D_{50} = 0.259$

$D_{30} = 0.167$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 12C

Source of Sample: B-052

Location: -

Date: 4/24/09

Depth / Elev: 29.5' / 756.86'



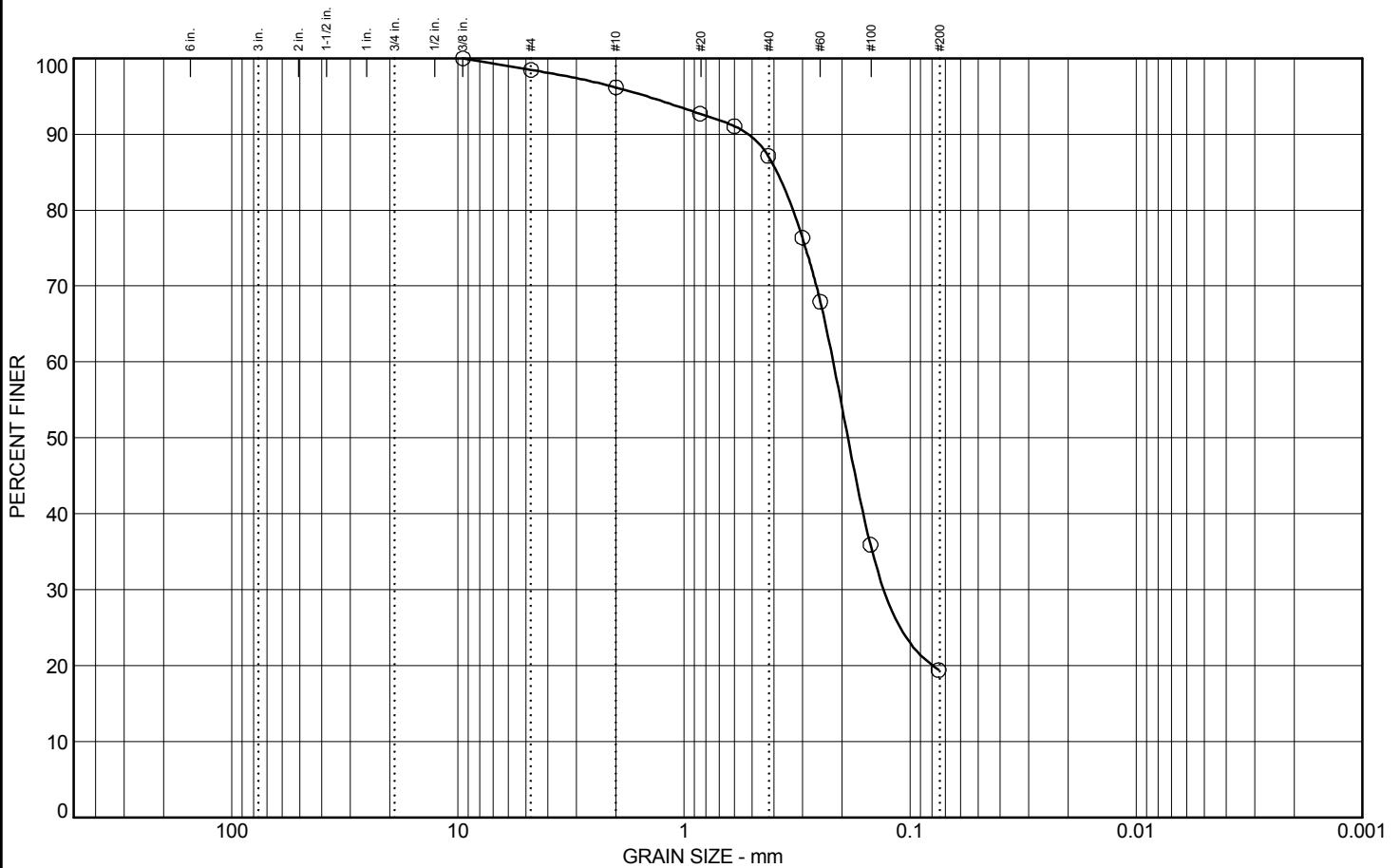
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	3.8	9.4	67.4	19.4	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	98.5		
2	96.2		
0.85	92.7		
0.6	91.1		
0.425	87.1		
0.3	76.4		
0.25	67.9		
0.15	35.9		
0.075	19.4		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 5.8%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.397$

$D_{60} = 0.22$

$D_{50} = 0.188$

$D_{30} = 0.117$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 13A

Source of Sample: B-052

Location: -

Date: 4/24/09

Depth / Elev: 31' / 755.36'



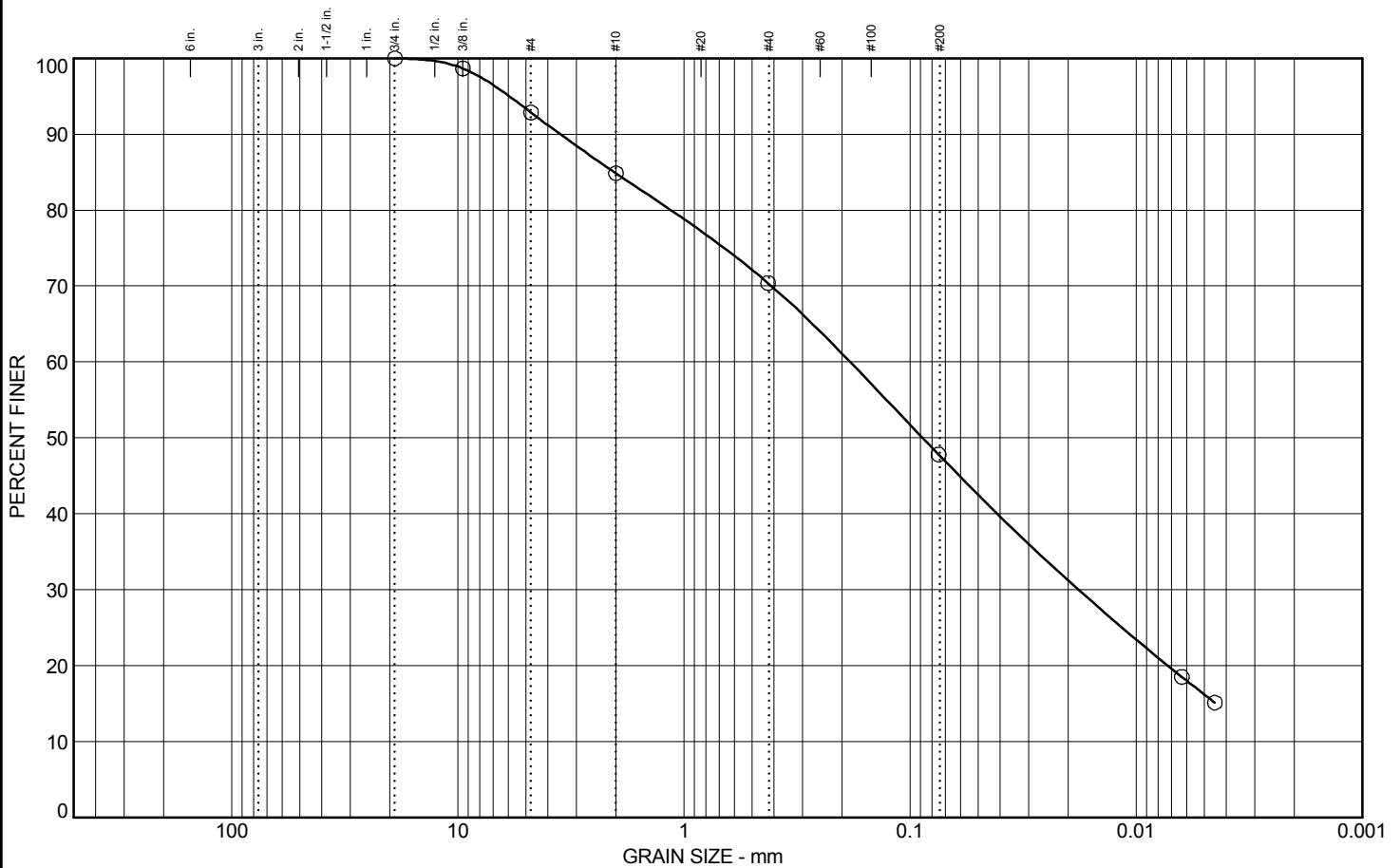
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	15.1	14.6	22.4	31.6	16.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.7		
4.75	92.9		
2	84.9		
0.425	70.4		
0.075	47.8		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 9.4%

Atterberg Limits

LL = 20

PL = 14

PI = 6

Coefficients

$D_{85} = 2.031$

$D_{60} = 0.191$

$D_{50} = 0.089$

$D_{30} = 0.017$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 13B

Source of Sample: B-052

Location: -

Date: 4/24/09

Depth / Elev: 31.5' / 754.86'



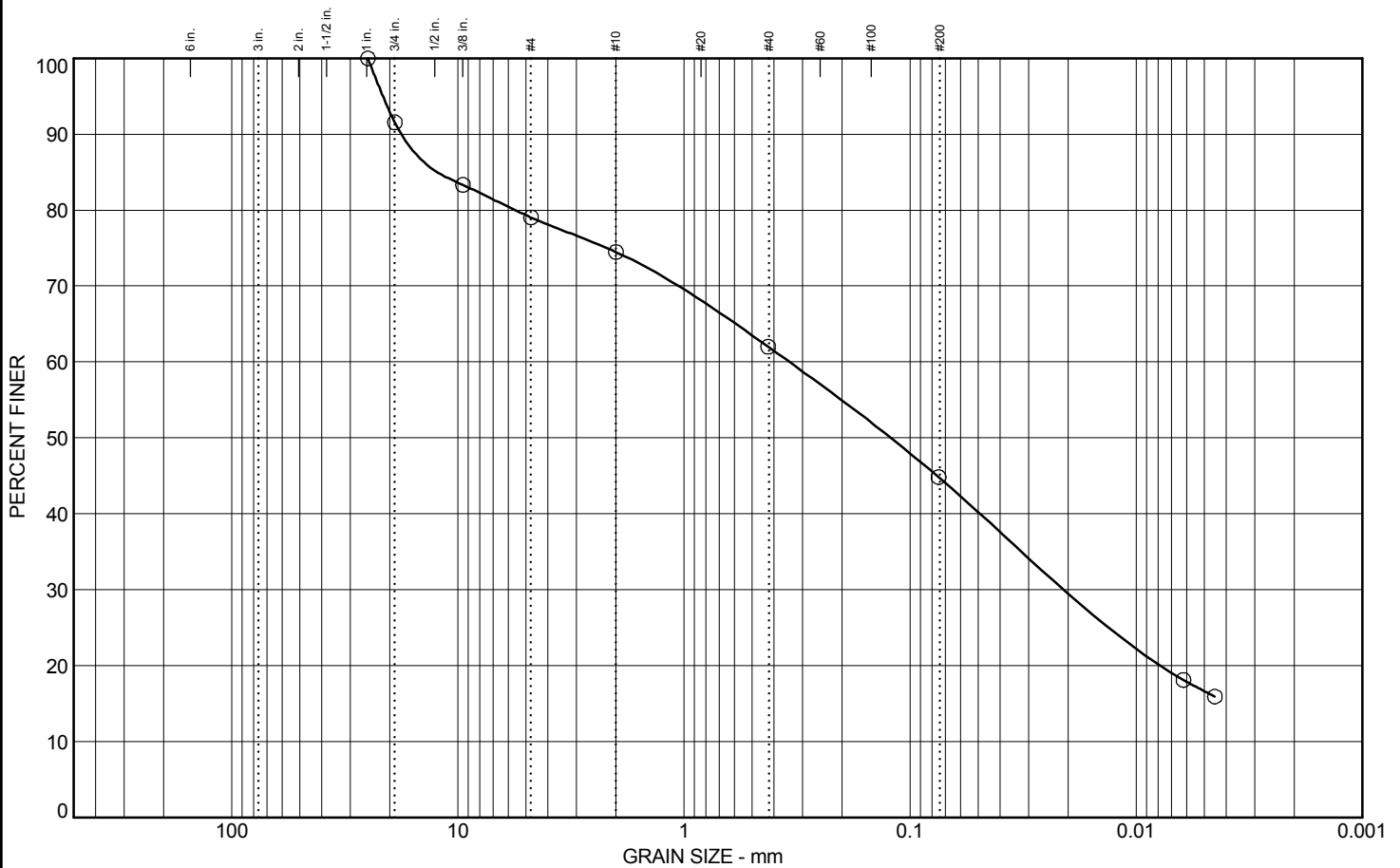
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	8.4	17.1	12.6	17.1	28.2	16.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	91.6		
9.5	83.3		
4.75	79.0		
2	74.5		
0.425	62.0		
0.075	44.8		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine to coarse gravel

General Characteristics

Moisture Content = 10.2%

Atterberg Limits

LL= 20

PL= 14

PI= 6

Coefficients

$D_{85} = 10.94$

$D_{60} = 0.347$

$D_{50} = 0.127$

$D_{30} = 0.019$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Sample No.: 14

Source of Sample: B-052

Date: 4/24/09

Location: -

Depth / Elev: 32.5' / 753.86'



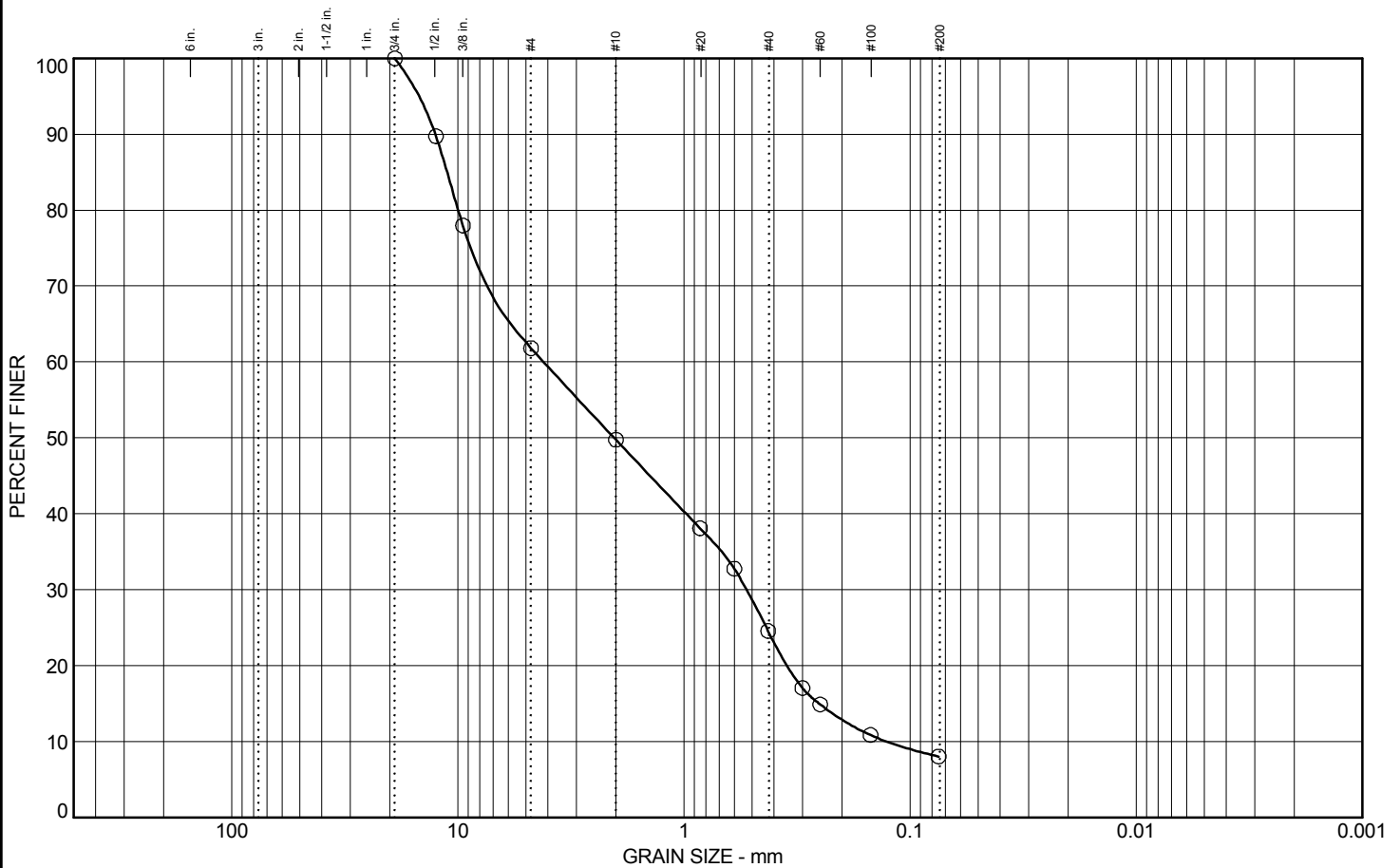
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	50.3	25.5	16.3	8.0	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	89.7		
9.5	78.0		
4.75	61.8		
2	49.7		
0.85	38.1		
0.6	32.7		
0.425	24.5		
0.3	17.0		
0.25	14.8		
0.15	10.8		
0.075	8.0		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 3.1%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 11.193$

$D_{60} = 4.172$

$D_{50} = 2.037$

$D_{30} = 0.535$

$D_{15} = 0.253$

$D_{10} = 0.122$

$C_u = 34.14$

$C_c = 0.56$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 15

Source of Sample: B-052

Date: 4/24/09

Location: -

Depth / Elev: 34' / 752.36'



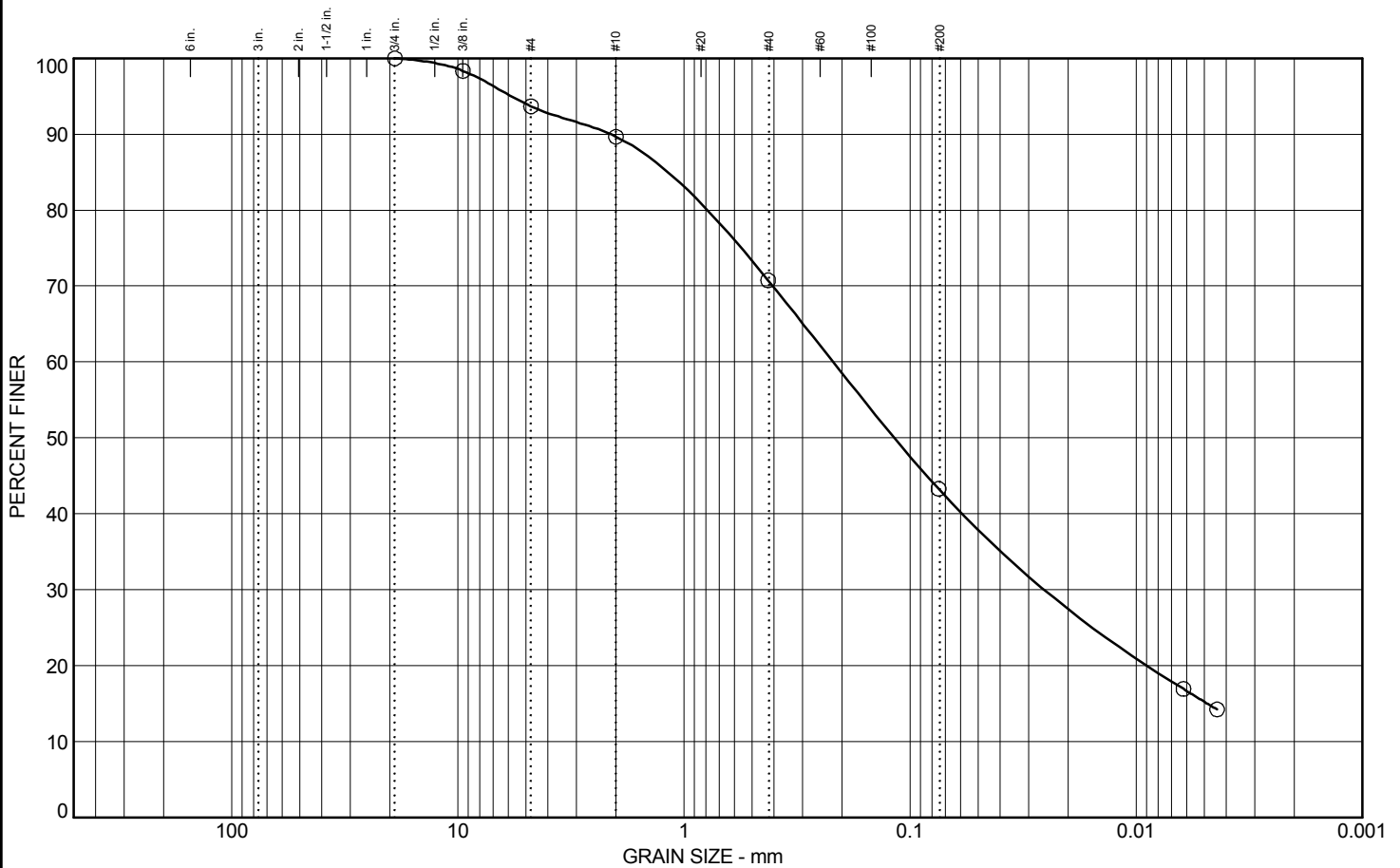
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.3	19.1	27.3	28.1	15.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.3		
4.75	93.7		
2	89.7		
0.425	70.7		
0.075	43.3		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 8.0%

Atterberg Limits

LL= 20

PL= 14

PI= 6

Coefficients

$D_{85} = 1.365$

$D_{60} = 0.216$

$D_{50} = 0.115$

$D_{30} = 0.021$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Sample No.: 1

Source of Sample: B-053-0

Location: -

Date:

Depth / Elev: 1' / 772.81'



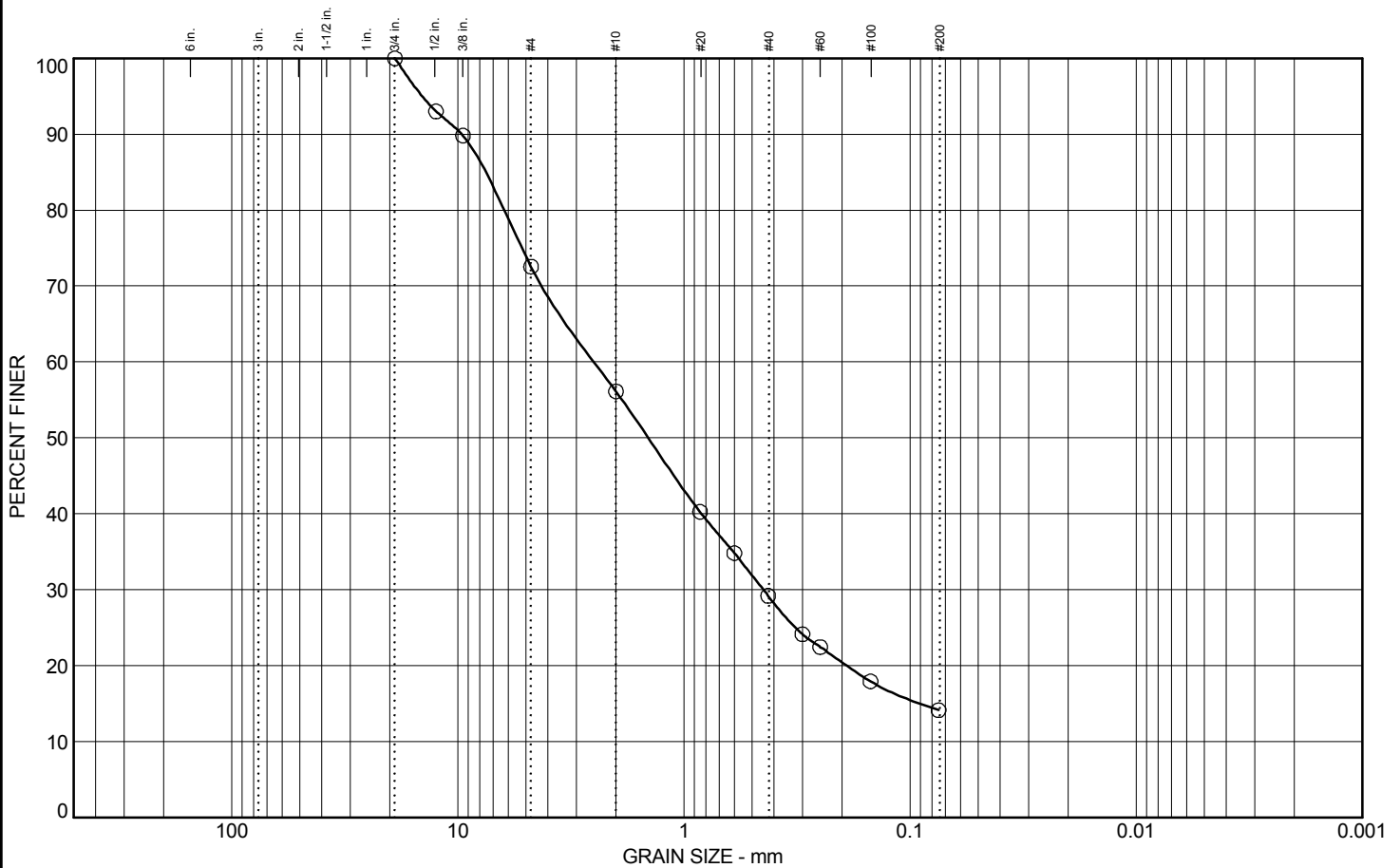
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	43.9	27.1	14.9	14.1	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	93.0		
9.5	89.8		
4.75	72.6		
2	56.1		
0.85	40.3		
0.6	34.8		
0.425	29.2		
0.3	24.1		
0.25	22.4		
0.15	17.9		
0.075	14.1		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 5.8%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 7.829$
 $D_{30} = 0.447$
 $C_u =$
 $D_{60} = 2.453$
 $D_{15} = 0.088$
 $C_c =$
 $D_{50} = 1.438$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 3

Location: -

Source of Sample: B-053-0

Date:

Depth / Elev: 6' / 767.81'



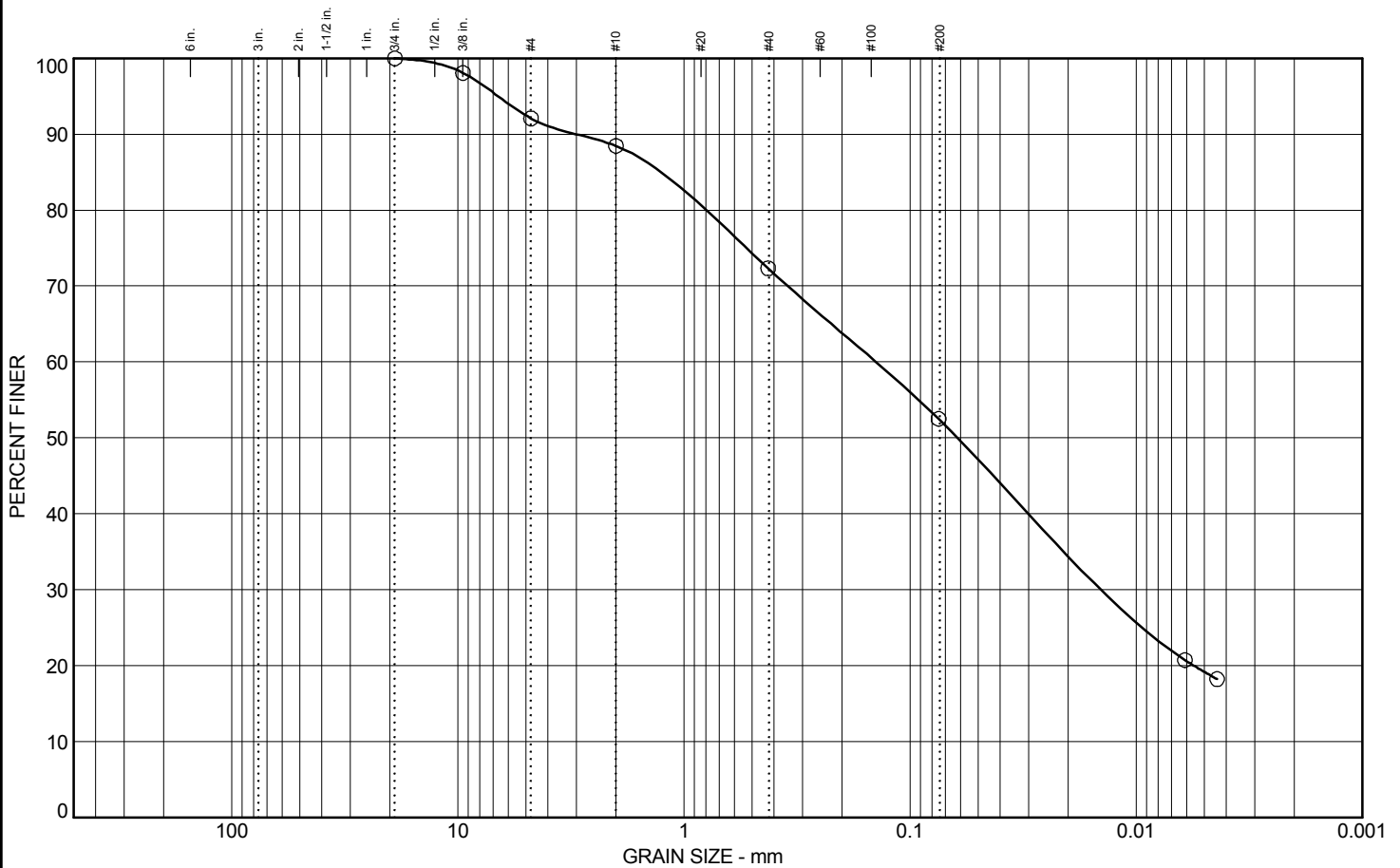
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	11.5	16.3	19.7	33.3	19.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.1		
4.75	92.1		
2	88.5		
0.425	72.3		
0.075	52.5		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.9%

Atterberg Limits

LL= 24

PL= 16

PI= 8

Coefficients

$D_{85} = 1.434$

$D_{60} = 0.145$

$D_{50} = 0.062$

$D_{30} = 0.013$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 2

Source of Sample: B-054

Location: -

Date:

Depth / Elev: 3.5' / 772.49'



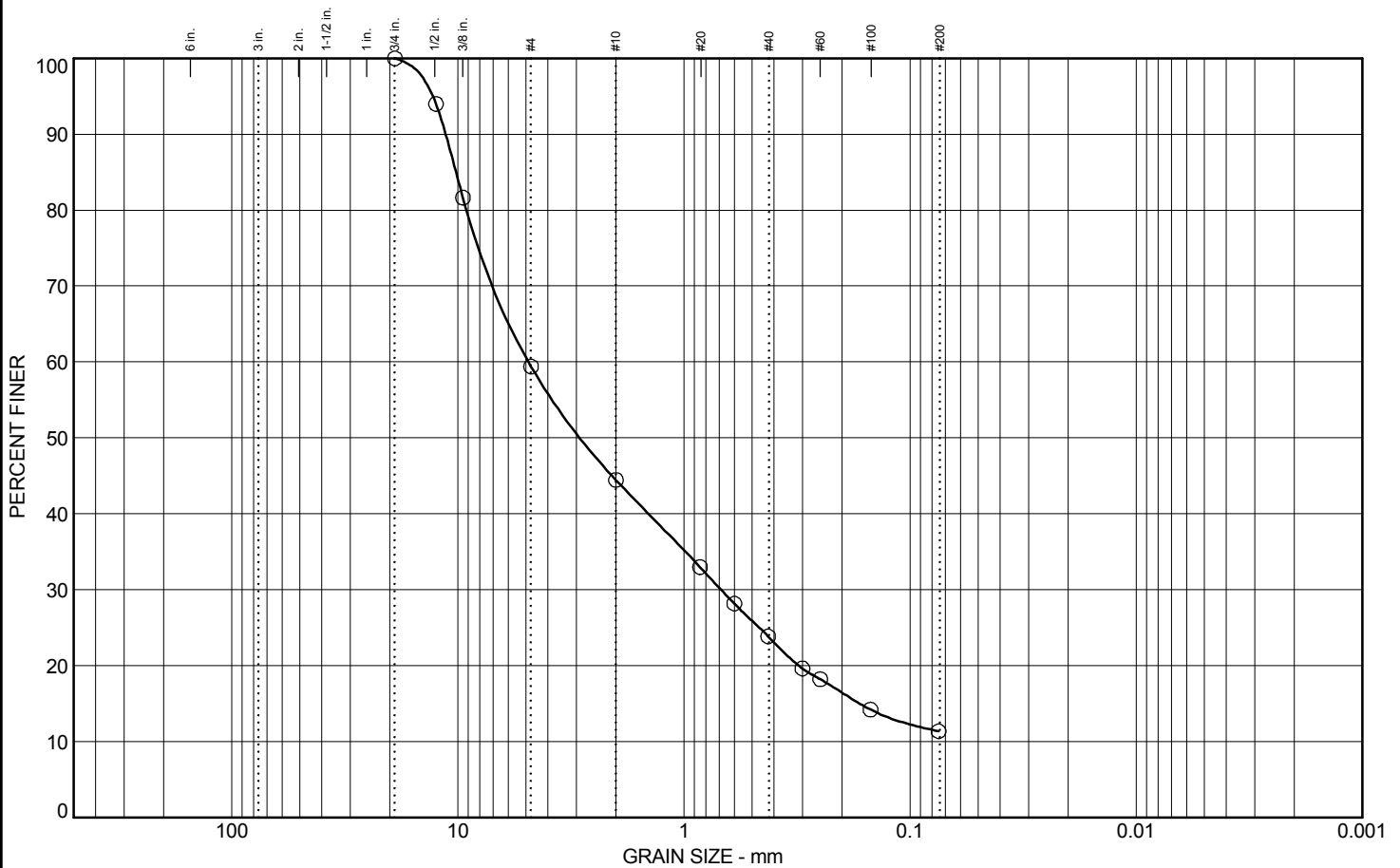
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	55.6	20.8	12.4	11.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	94.0		
9.5	81.6		
4.75	59.4		
2	44.4		
0.85	33.0		
0.6	28.2		
0.425	23.8		
0.3	19.6		
0.25	18.2		
0.15	14.2		
0.075	11.3		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 3.5%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 10.237$

$D_{60} = 4.841$

$D_{50} = 2.759$

$D_{30} = 0.686$

$D_{15} = 0.166$

$D_{10} =$

$C_u = 89.19$

$C_c = 1.79$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 4

Location: -

Source of Sample: B-054

Date:

Depth / Elev: 7.5' / 768.49'



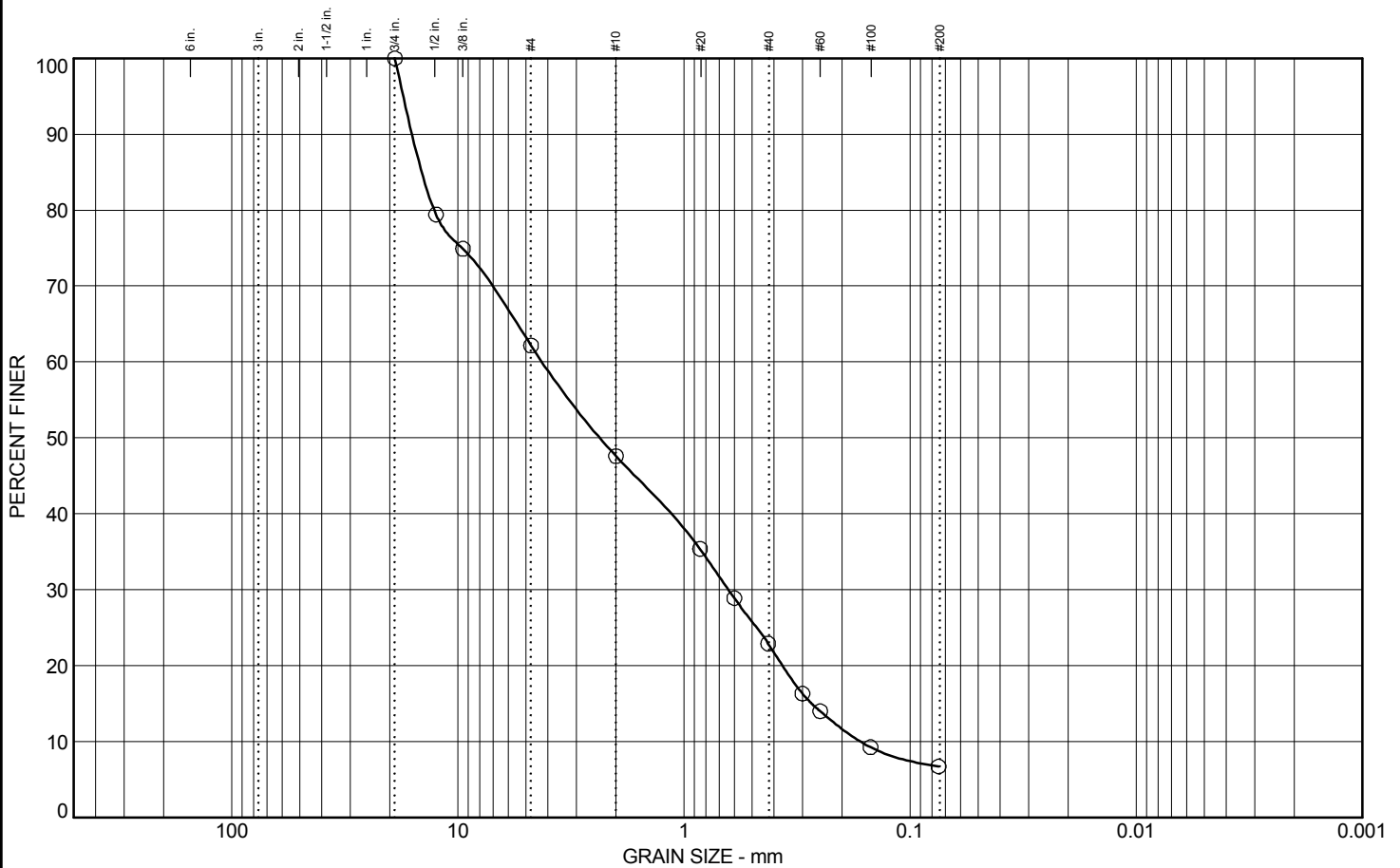
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	52.4	24.9	16.0	6.7	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	79.4		
9.5	74.9		
4.75	62.2		
2	47.6		
0.85	35.4		
0.6	28.9		
0.425	22.9		
0.3	16.3		
0.25	14.0		
0.15	9.2		
0.075	6.7		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 4.2%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 14$
 $D_{30} = 0.638$
 $C_u = 25.64$
 $D_{60} = 4.18$
 $D_{15} = 0.271$
 $C_c = 0.60$
 $D_{50} = 2.308$
 $D_{10} = 0.163$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 5

Location: -

Source of Sample: B-054

Date:

Depth / Elev: 9' / 766.99'



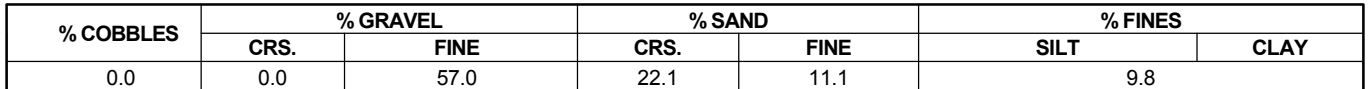
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

GRAIN SIZE II - DLZ MOD - GINT STD US LAB.GDT - 5/22/09 11:03 - S:\DEPT\GEOTECHNICAL\GINT\PROJECTS\0221-1004-01.GPJ

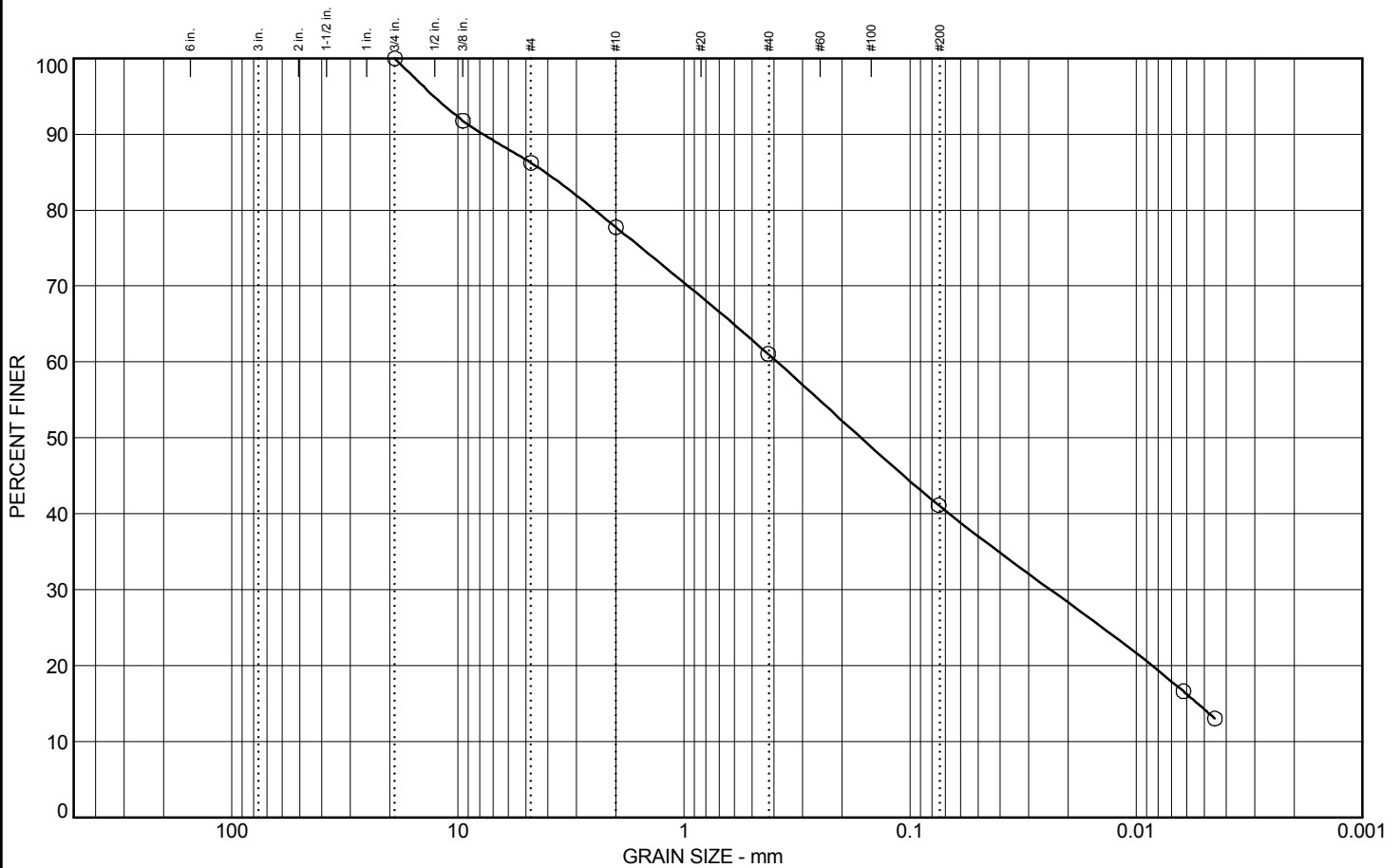


<u>Soil Description</u>		
medium to coarse sand, non-plastic silt, fine gravel		
<u>General Characteristics</u>		
Moisture Content = 3.5%		
<u>Atterberg Limits</u>		
LL=	PL=	PI= Non-plastic
<u>Coefficients</u>		
D ₈₅ = 13.593	D ₆₀ = 5.044	D ₅₀ = 2.926
D ₃₀ = 0.875	D ₁₅ = 0.221	D ₁₀ = 0.079
C _u = 64.20	C _c = 1.93	
<u>Classification</u>		
ODOT = A-1-a		
<u>Remarks</u>		
Group Index = 0		



Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	22.3	16.8	19.8	26.9	14.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	91.8		
4.75	86.2		
2	77.7		
0.425	61.1		
0.075	41.1		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 6.9%

Atterberg Limits

LL= 20

PL= 15

PI= 5

Coefficients

$D_{85} = 4.191$

$D_{60} = 0.388$

$D_{50} = 0.162$

$D_{30} = 0.024$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 1

Sample No.: 2

Location: -

Source of Sample: B-055

Date: 4/21/09

Depth / Elev: 3' / 768.28'



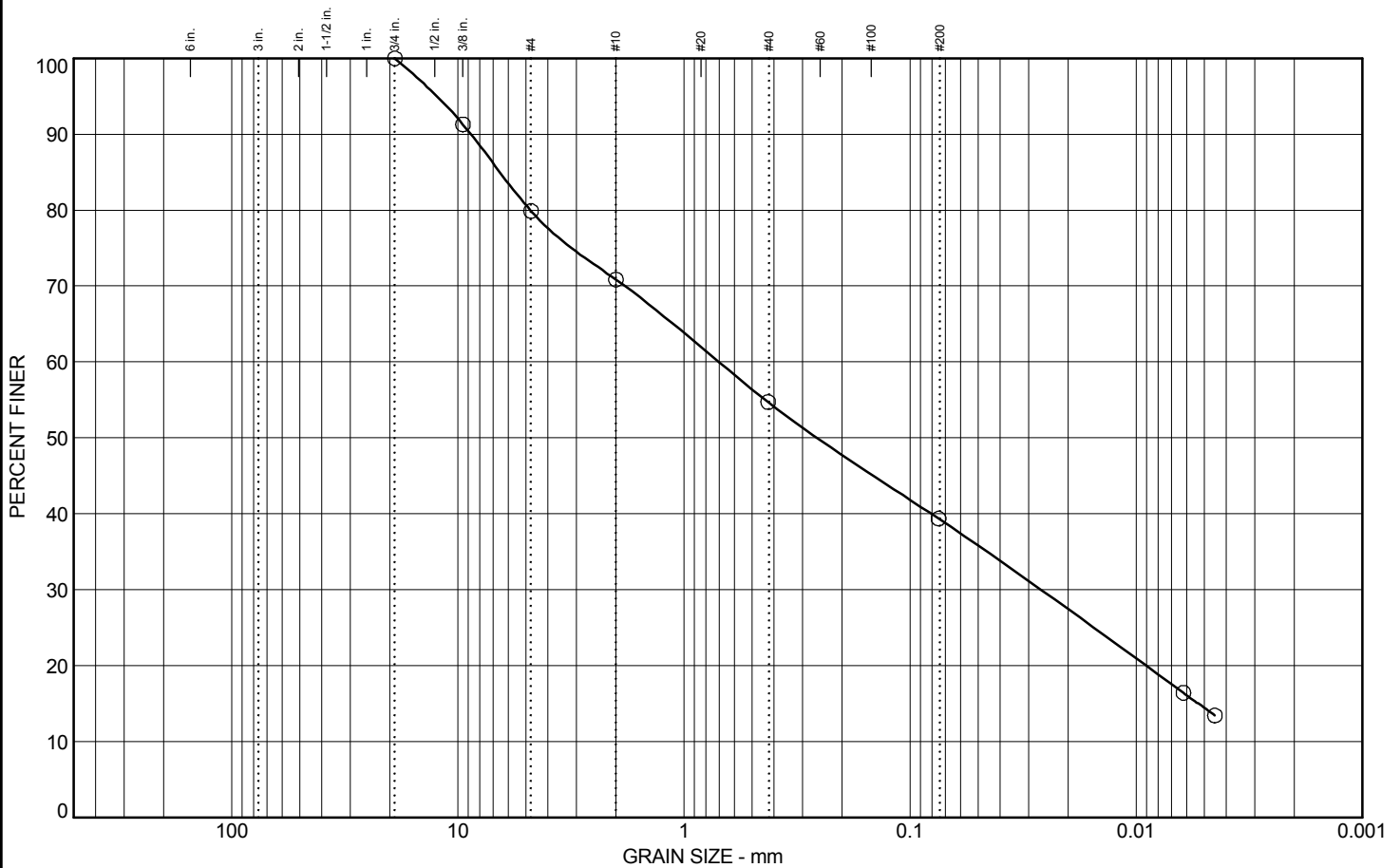
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	29.2	16.2	15.3	25.0	14.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	91.3		
4.75	79.9		
2	70.8		
0.425	54.7		
0.075	39.4		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 5.1%

Atterberg Limits

LL= 18

PL= 14

PI= 4

Coefficients

$D_{85} = 6.482$

$D_{60} = 0.706$

$D_{50} = 0.25$

$D_{30} = 0.027$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 1

Sample No.: 3

Location: -

Source of Sample: B-055

Date: 4/21/09

Depth / Elev: 4.5' / 766.78'



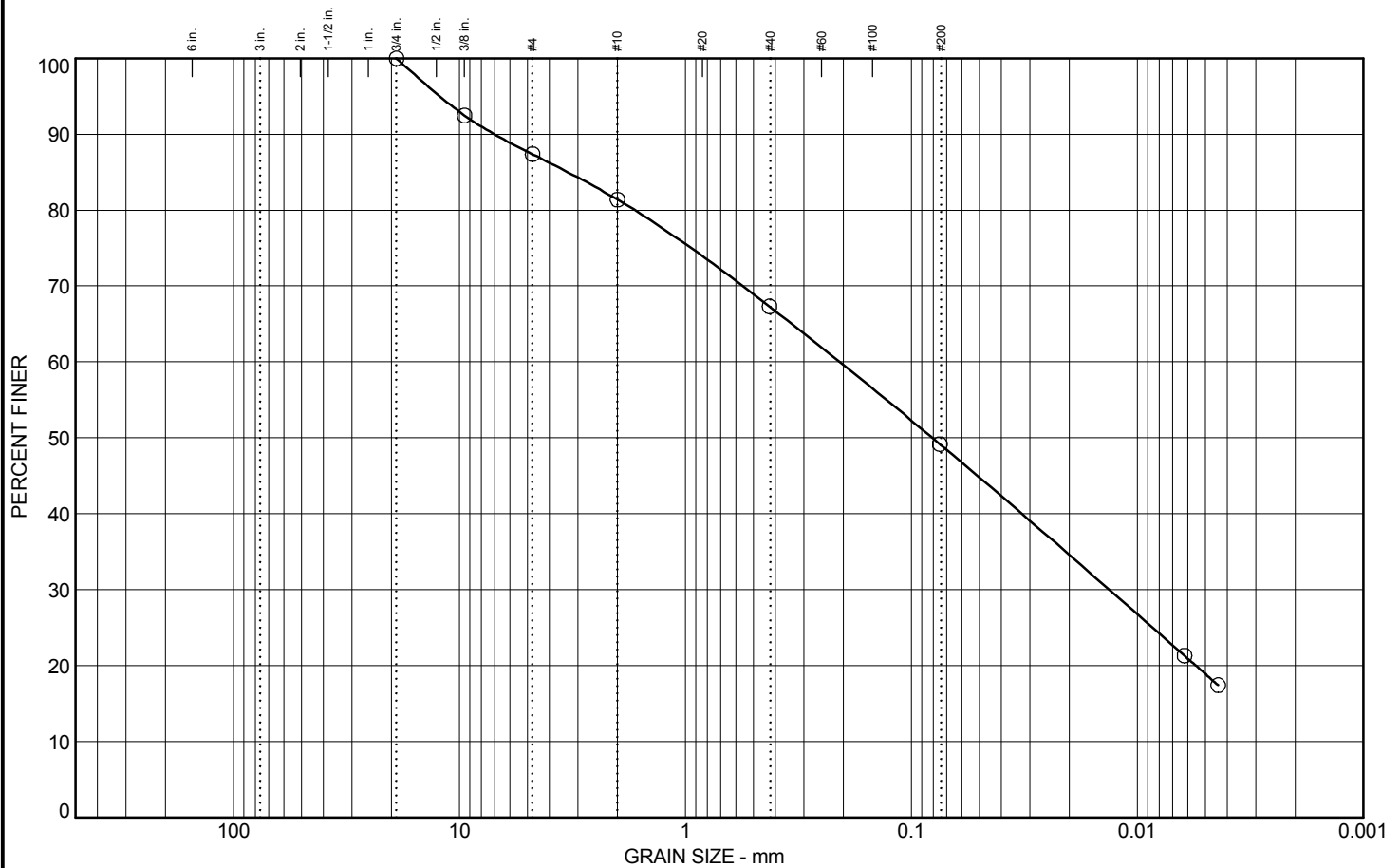
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	18.6	14.2	18.0	30.3	18.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	92.5		
4.75	87.4		
2	81.4		
0.425	67.3		
0.075	49.2		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 6.2%

Atterberg Limits

LL= 23

PL= 13

PI= 10

Coefficients

$D_{85} = 3.373$

$D_{60} = 0.211$

$D_{50} = 0.081$

$D_{30} = 0.014$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 3

Sample No.: 4

Source of Sample: B-055

Date: 4/21/09

Location: -

Depth / Elev: 6' / 765.28'



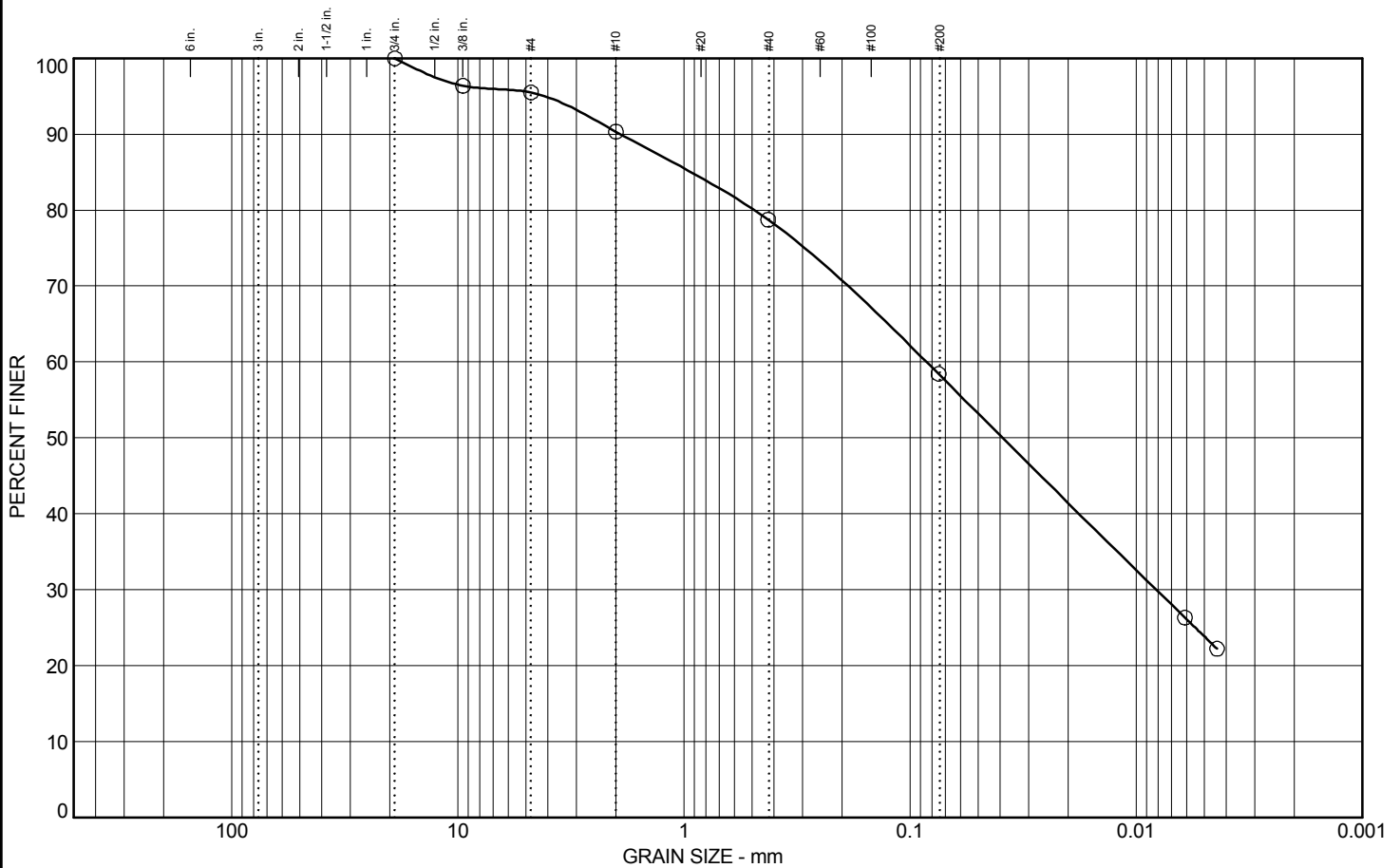
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.7	11.7	20.2	34.6	23.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.4		
4.75	95.5		
2	90.3		
0.425	78.7		
0.075	58.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.3%

Atterberg Limits

LL = 22

PL = 13

PI = 9

Coefficients

$D_{85} = 0.982$

$D_{60} = 0.086$

$D_{50} = 0.039$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 5

Source of Sample: B-055

Location: -

Date: 4/21/09

Depth / Elev: 7.5' / 763.78'



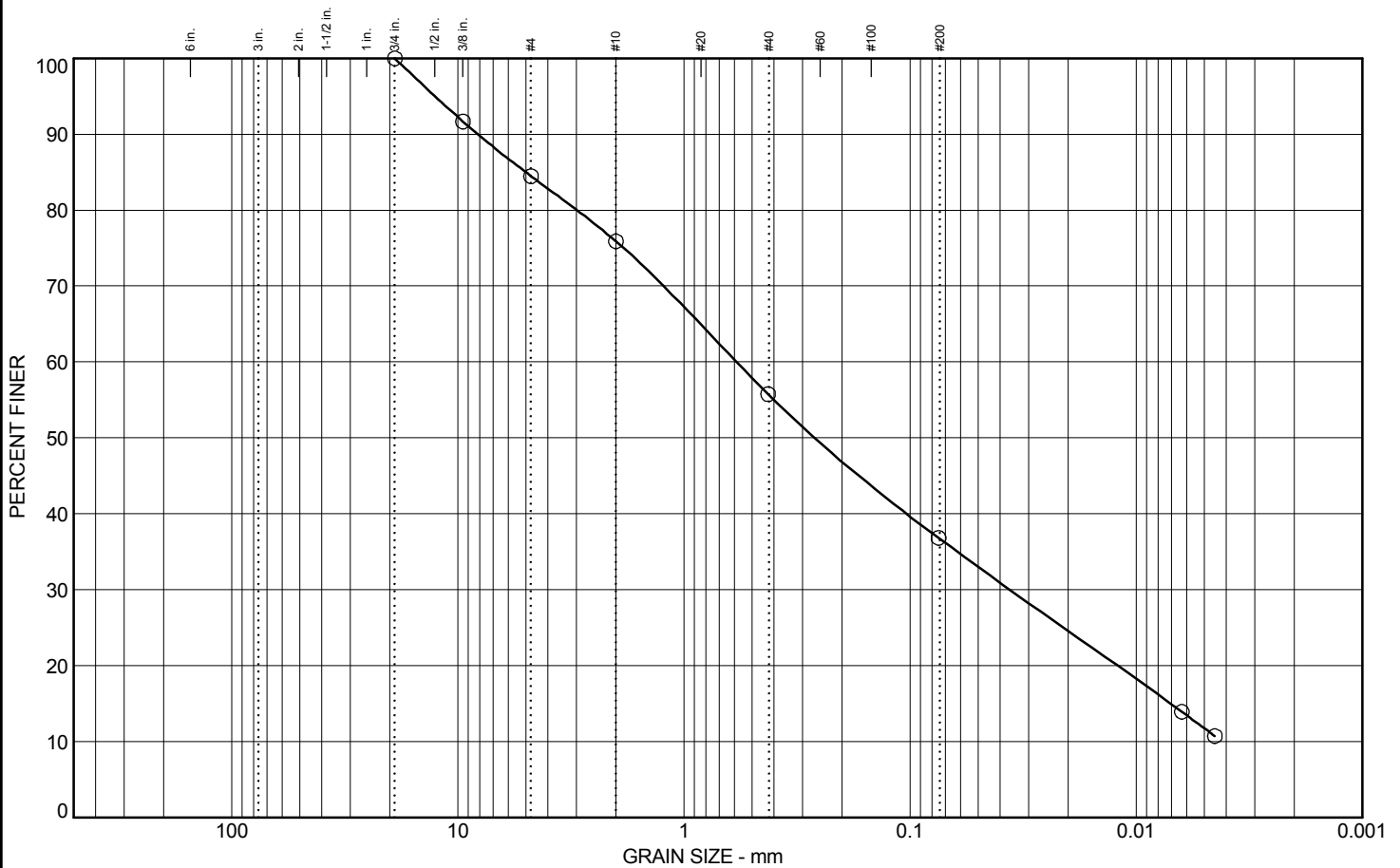
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	24.1	20.3	18.8	25.1	11.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	91.7		
4.75	84.5		
2	75.9		
0.425	55.8		
0.075	36.8		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 10.2%

Atterberg Limits

LL= 20

PL= 15

PI= 5

Coefficients

$D_{85} = 4.999$

$D_{60} = 0.589$

$D_{50} = 0.251$

$D_{30} = 0.036$

$D_{15} = 0.007$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 1

Sample No.: 1

Source of Sample: B-056

Date: 4/21/09

Location: -

Depth / Elev: 2' / 766.51'



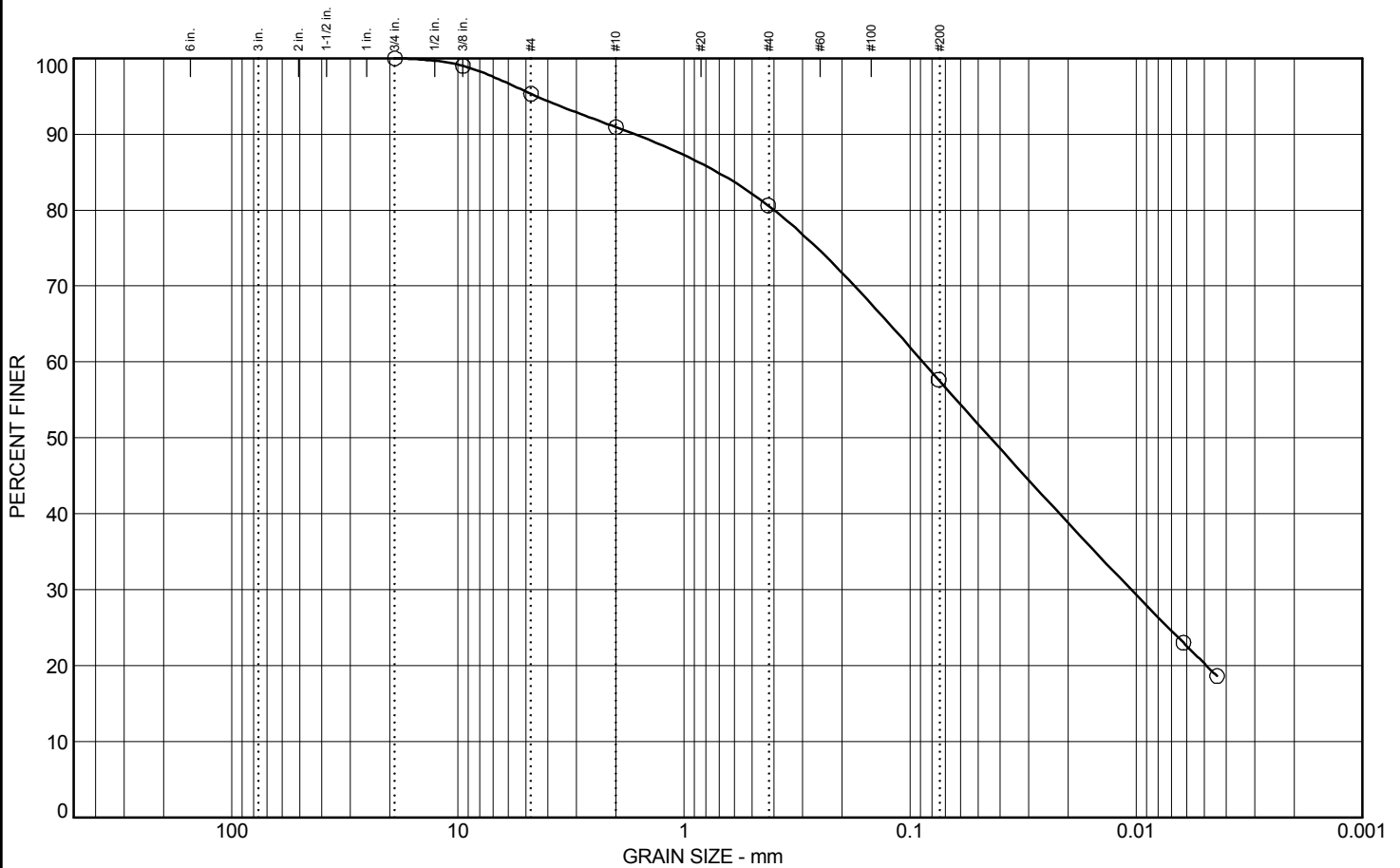
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.1	10.5	22.8	37.4	20.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.0		
4.75	95.3		
2	90.9		
0.425	80.6		
0.075	57.7		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.6%

Atterberg Limits

LL= 21

PL= 13

PI= 8

Coefficients

$D_{85} = 0.82$

$D_{60} = 0.089$

$D_{50} = 0.043$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 2

Source of Sample: B-056

Date: 4/21/09

Location: -

Depth / Elev: 3.5' / 765.01'



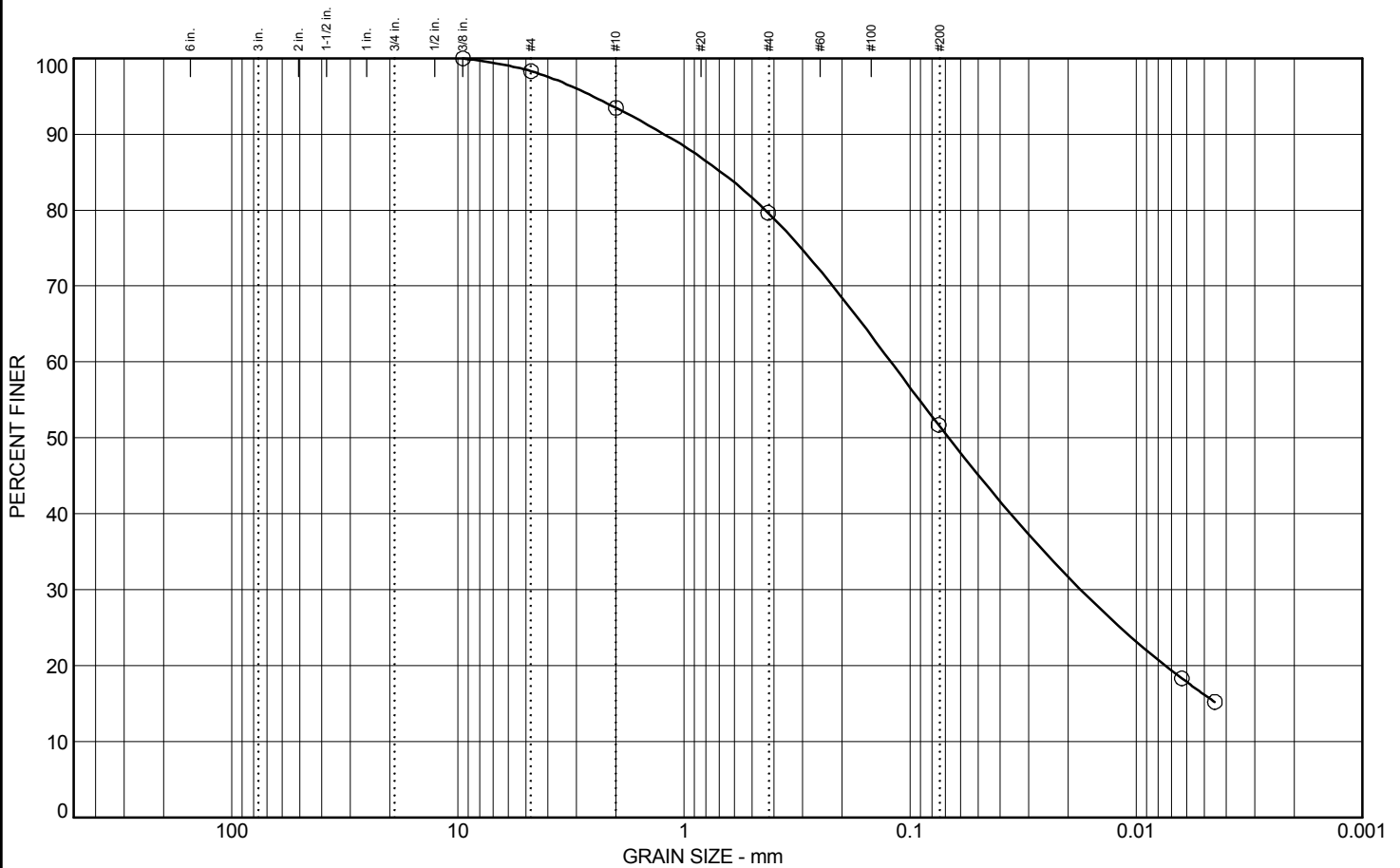
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.5	14.0	27.8	35.5	16.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	98.3		
2	93.5		
0.425	79.6		
0.075	51.7		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.4%

Atterberg Limits

LL= 19

PL= 13

PI= 6

Coefficients

$D_{85} = 0.774$

$D_{60} = 0.126$

$D_{50} = 0.066$

$D_{30} = 0.015$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 3

Location: -

Source of Sample: B-056

Date: 4/21/09

Depth / Elev: 5' / 763.51'



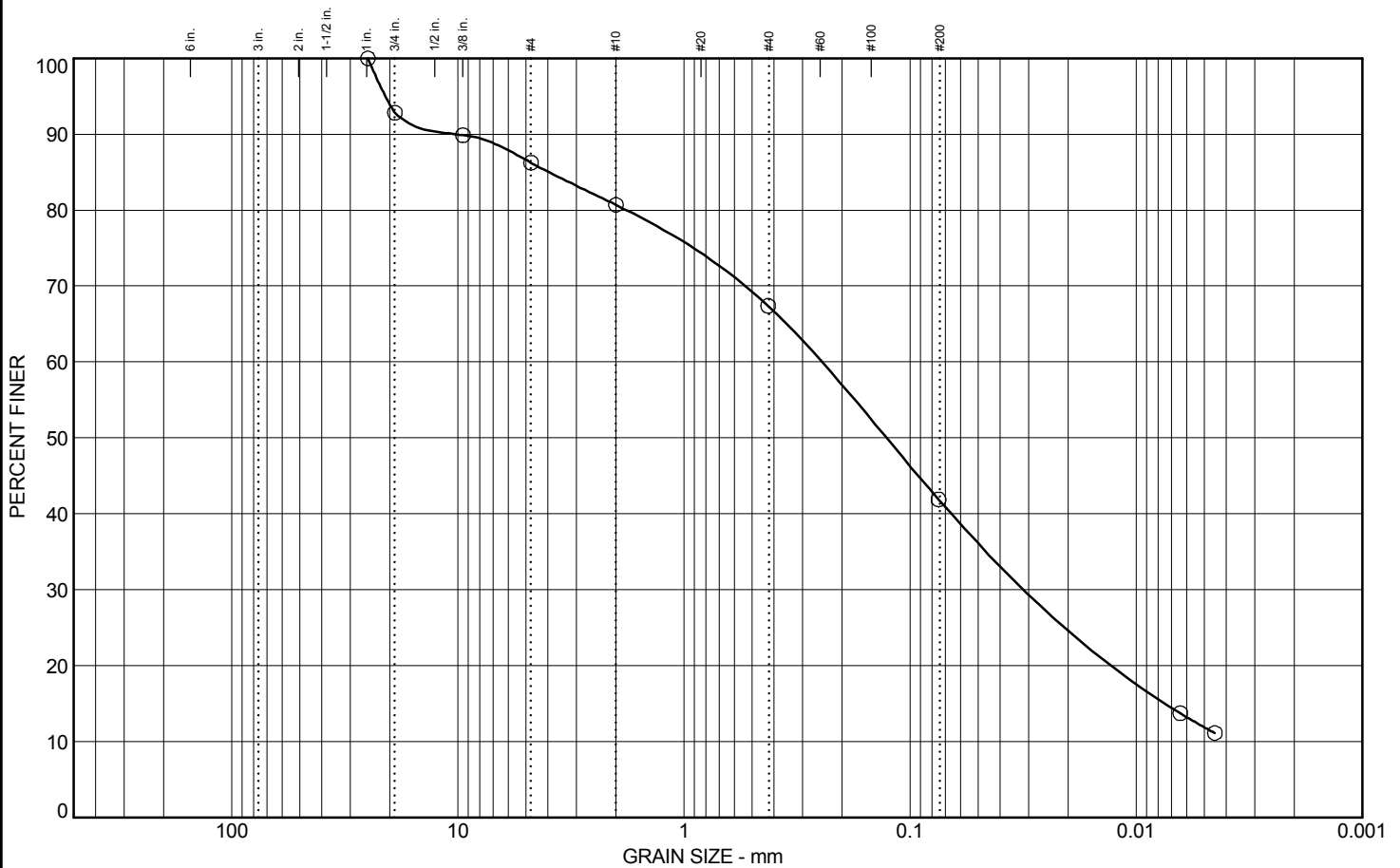
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	7.2	12.1	13.5	25.3	30.0	11.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	92.8		
9.5	89.9		
4.75	86.2		
2	80.7		
0.425	67.4		
0.075	41.9		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 6.8%

Atterberg Limits

LL= 19

PL= 12

PI= 7

Coefficients

$D_{85} = 3.912$

$D_{60} = 0.257$

$D_{50} = 0.13$

$D_{30} = 0.027$

$D_{15} = 0.007$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Sample No.: 4

Location: -

Source of Sample: B-056

Date: 4/21/09

Depth / Elev: 6.5' / 762.01'



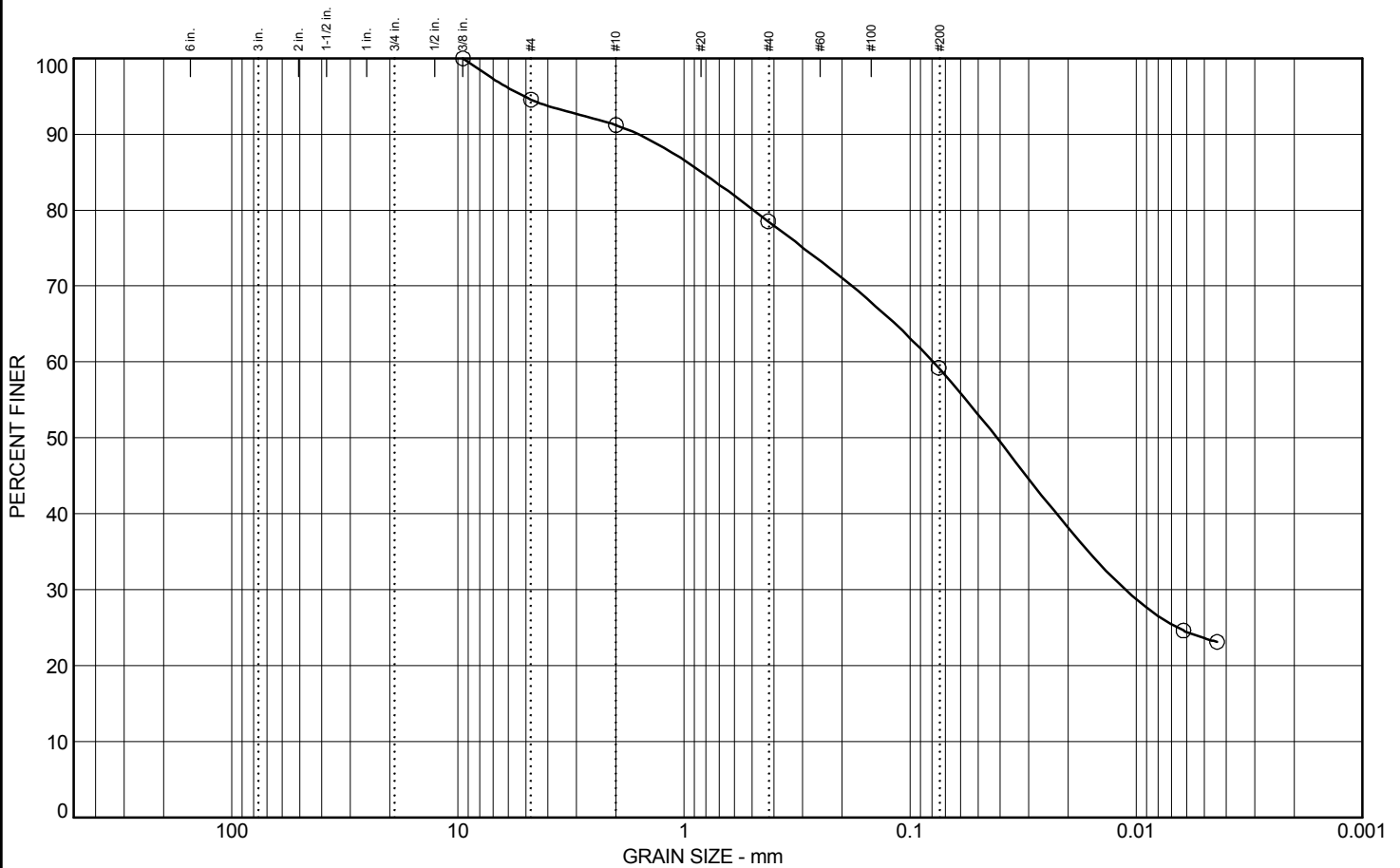
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.8	12.8	19.2	35.6	23.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	94.6		
2	91.2		
0.425	78.5		
0.075	59.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.7%

Atterberg Limits

LL = 24

PL = 15

PI = 9

Coefficients

$D_{85} = 0.938$

$D_{60} = 0.08$

$D_{50} = 0.039$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 7

Source of Sample: B-057

Date: 3/20/09

Location: -

Depth / Elev: 16' / 777.23'



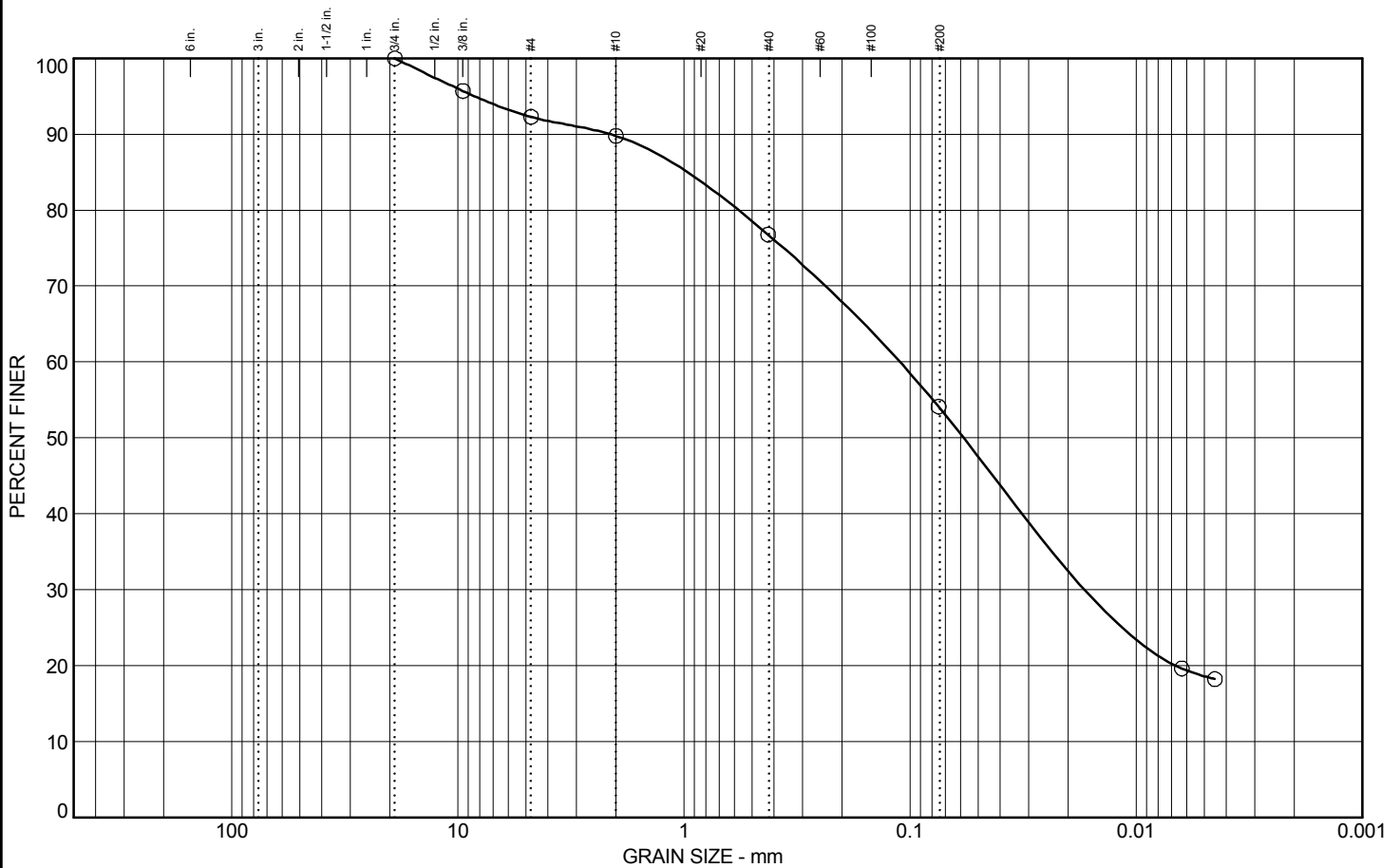
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.2	13.1	22.5	35.5	18.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.7		
4.75	92.3		
2	89.8		
0.425	76.8		
0.075	54.1		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.9%

Atterberg Limits

LL = 20

PL = 14

PI = 6

Coefficients

$D_{85} = 1.132$

$D_{30} = 0.013$

$C_u =$

$D_{60} = 0.118$

$D_{15} =$

$C_c =$

$D_{50} = 0.056$

$D_{10} =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 11

Location: -

Source of Sample: B-057

Date: 3/20/09

Depth / Elev: 26' / 767.23'



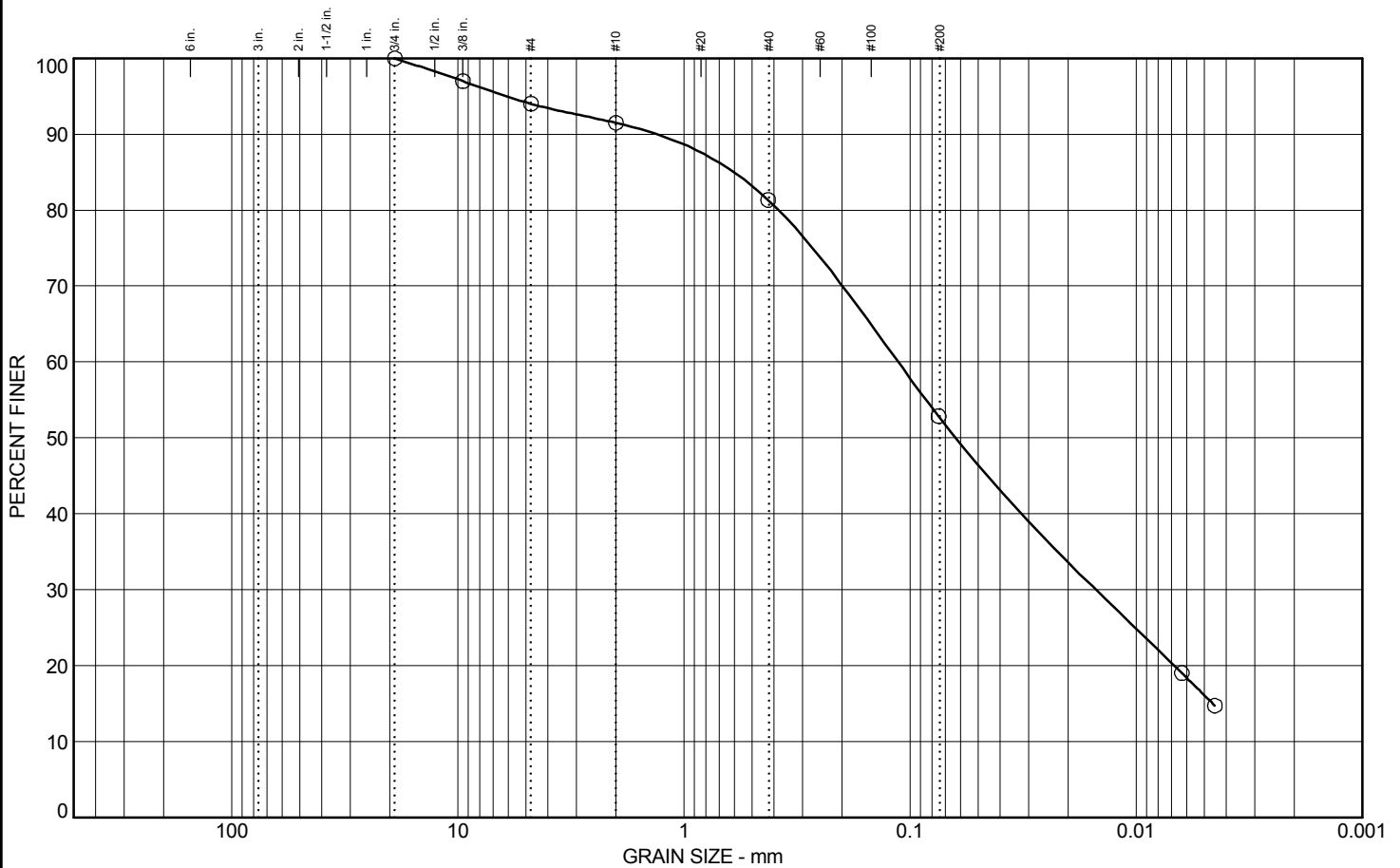
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.5	10.4	28.3	36.8	16.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	97.0		
4.75	94.0		
2	91.5		
0.425	81.3		
0.075	52.8		

* (no specification provided)

Soil Description

low plasticity clay, fine sand

General Characteristics

Moisture Content = 12.3%

Atterberg Limits

LL= 20

PL= 13

PI= 7

Coefficients

$D_{85} = 0.742$

$D_{60} = 0.116$

$D_{50} = 0.061$

$D_{30} = 0.014$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 14

Source of Sample: B-057

Date: 3/20/09

Location: -

Depth / Elev: 33.5' / 759.73'



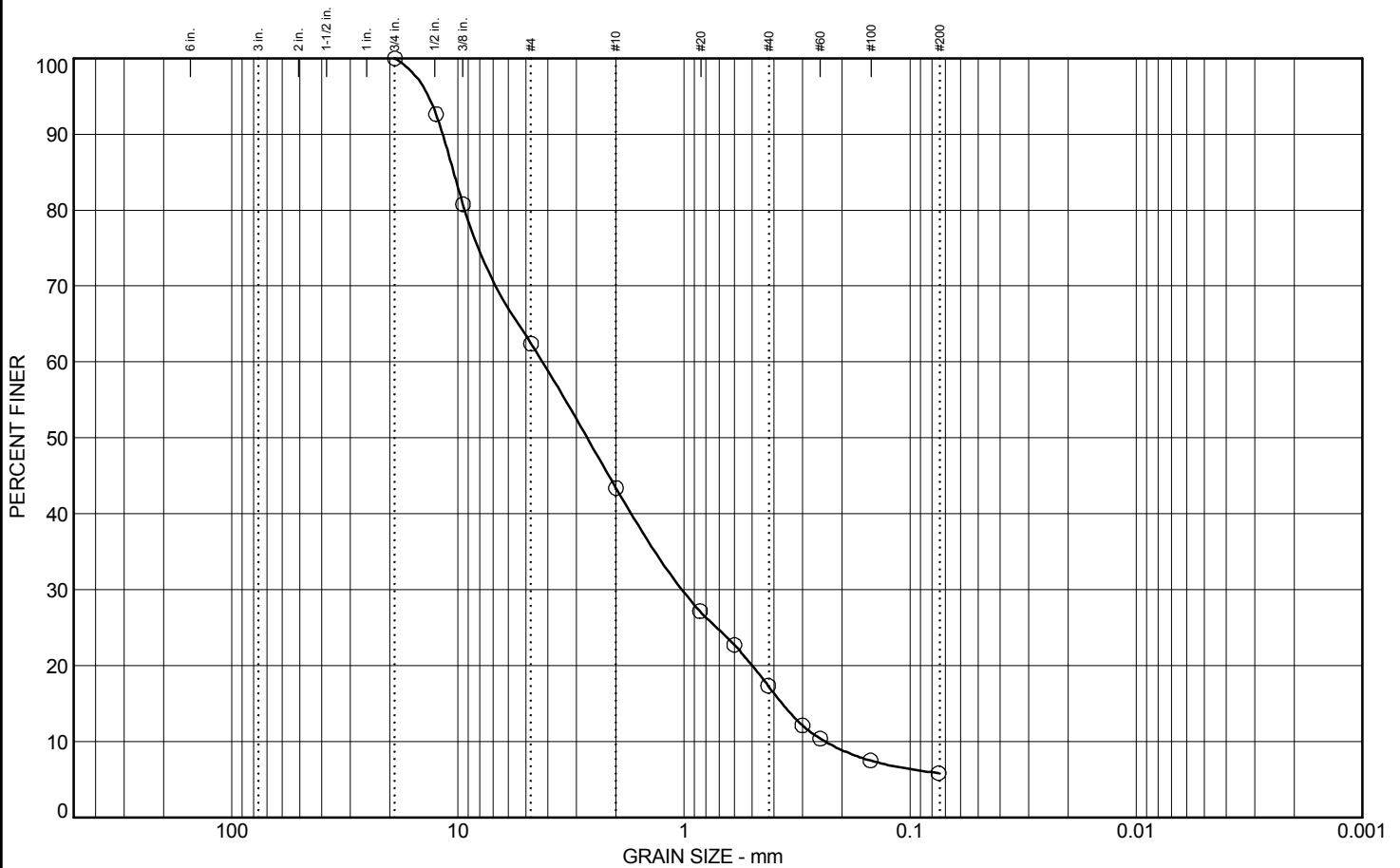
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	56.6	26.2	11.4	5.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	92.7		
9.5	80.8		
4.75	62.4		
2	43.4		
0.85	27.2		
0.6	22.7		
0.425	17.3		
0.3	12.1		
0.25	10.4		
0.15	7.5		
0.075	5.8		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 9.4%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 10.474$

$D_{60} = 4.26$

$D_{50} = 2.702$

$D_{30} = 0.988$

$D_{15} = 0.364$

$D_{10} = 0.235$

$C_u = 18.16$

$C_c = 0.98$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 18

Source of Sample: B-057

Location: -

Date: 3/20/09

Depth / Elev: 43.5' / 749.73'



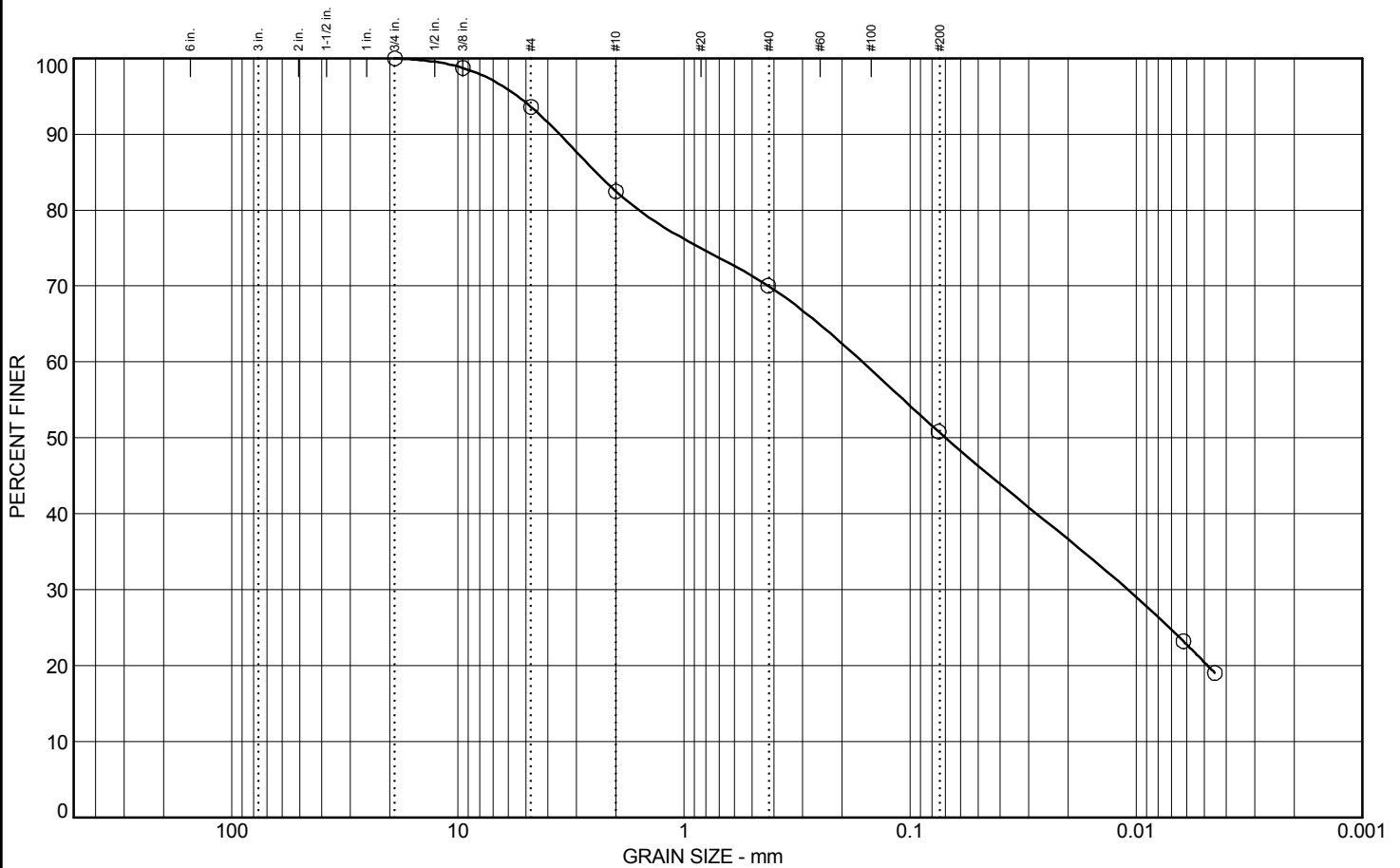
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	17.5	12.5	19.1	30.4	20.4

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.7		
4.75	93.6		
2	82.5		
0.425	70.0		
0.075	50.8		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.0%

Atterberg Limits

LL= 25

PL= 15

PI= 10

Coefficients

$D_{85} = 2.437$

$D_{60} = 0.172$

$D_{50} = 0.07$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 1

Source of Sample: B-059

Date:

Location: -

Depth / Elev: 1' / 768.69'



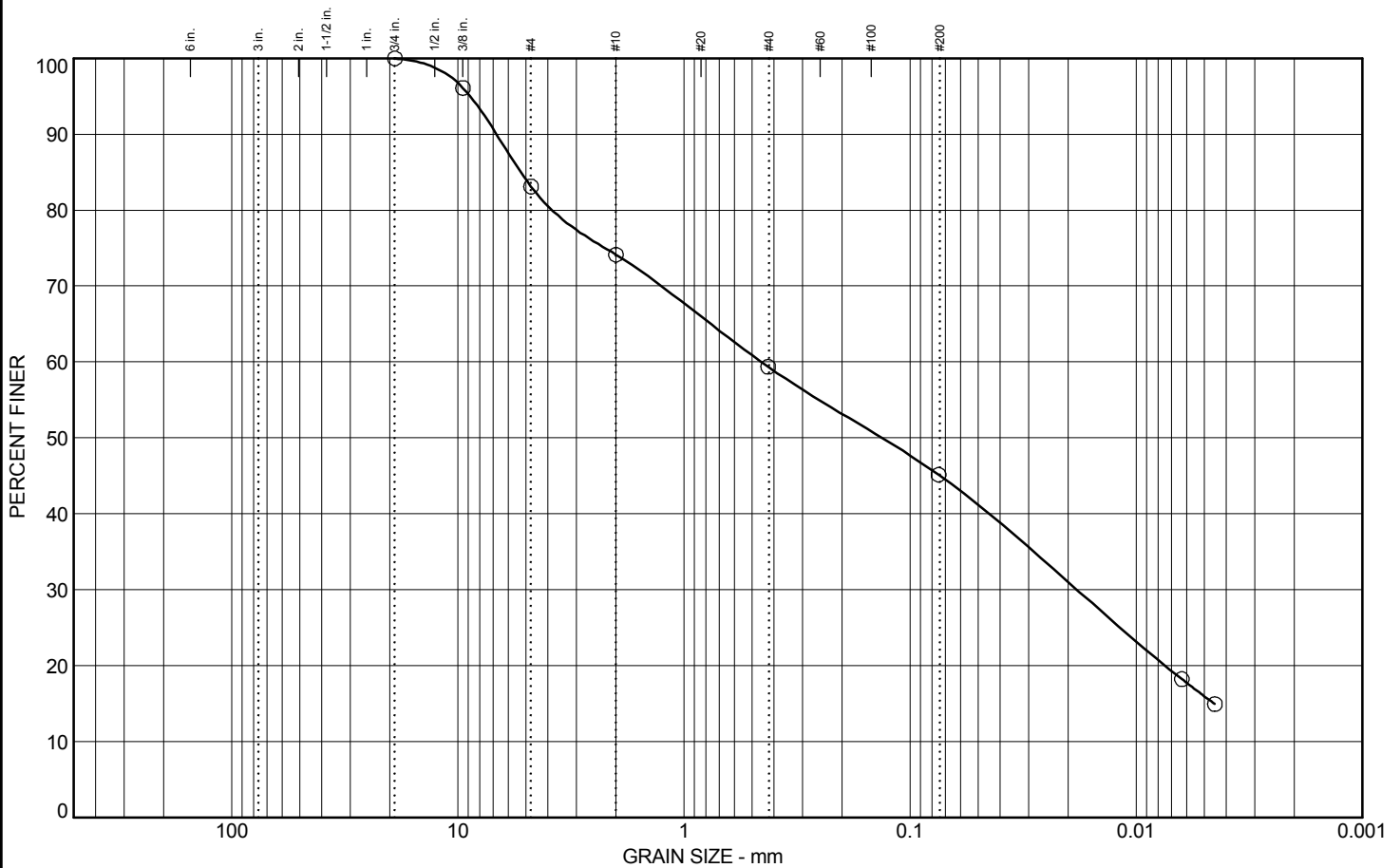
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	25.9	14.9	14.1	29.2	15.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.1		
4.75	83.1		
2	74.1		
0.425	59.4		
0.075	45.1		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 9.0%

Atterberg Limits

LL= 24

PL= 15

PI= 9

Coefficients

$D_{85} = 5.253$

$D_{60} = 0.455$

$D_{50} = 0.136$

$D_{30} = 0.019$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 2

Sample No.: 2

Location: -

Source of Sample: B-059

Date:

Depth / Elev: 2.5' / 767.19'



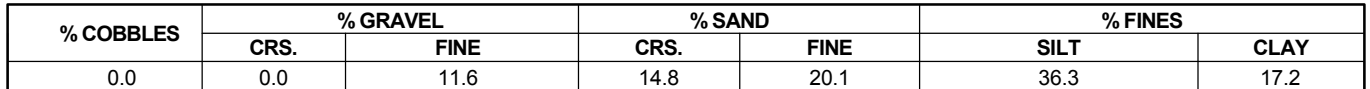
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

GRAIN SIZE II - DLZ MOD - GINT STD US LAB.GDT - 5/22/09 11:24 - S:\DEPT\GEOTECHNICAL\GINT\PROJECTS\0221-1004-01.GPJ

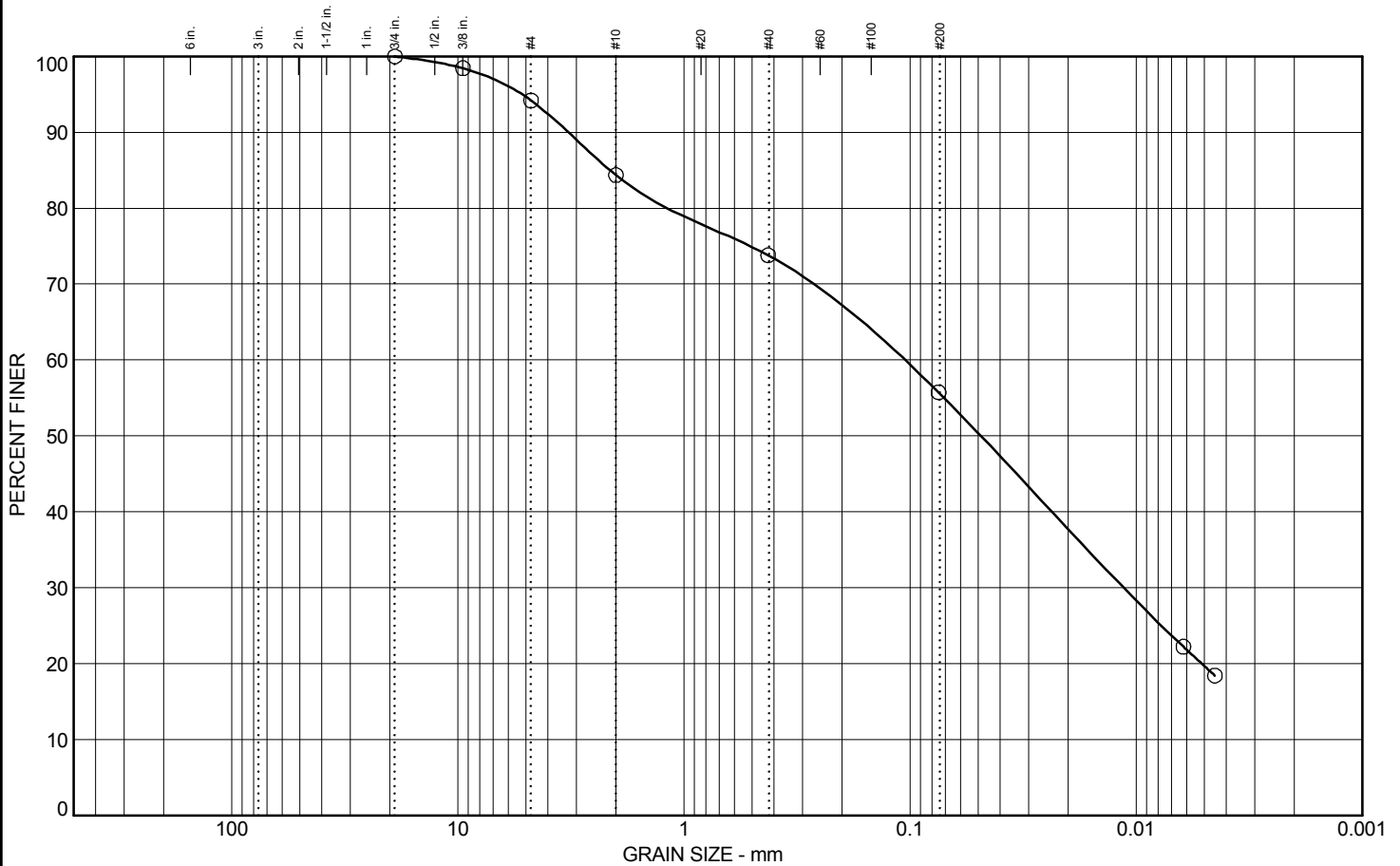


<u>Soil Description</u>		
low plasticity clay, fine to medium sand		
<u>General Characteristics</u>		
Moisture Content = 8.9%		
<u>Atterberg Limits</u>		
LL= 21	PL= 14	PI= 7
<u>Coefficients</u>		
D ₈₅ = 1.399	D ₆₀ = 0.131	D ₅₀ = 0.058
D ₃₀ = 0.013	D ₁₅ =	D ₁₀ =
C _u =	C _c =	
<u>Classification</u>		
ODOT = A-4a		
<u>Remarks</u>		
Group Index = 4		



Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	15.6	10.7	17.9	36.1	19.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.4		
4.75	94.2		
2	84.4		
0.425	73.8		
0.075	55.7		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.1%

Atterberg Limits

LL = 24

PL = 15

PI = 9

Coefficients

$D_{85} = 2.117$

$D_{60} = 0.113$

$D_{50} = 0.049$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 4

Source of Sample: B-059

Location: -

Date:

Depth / Elev: 5.5' / 764.19'



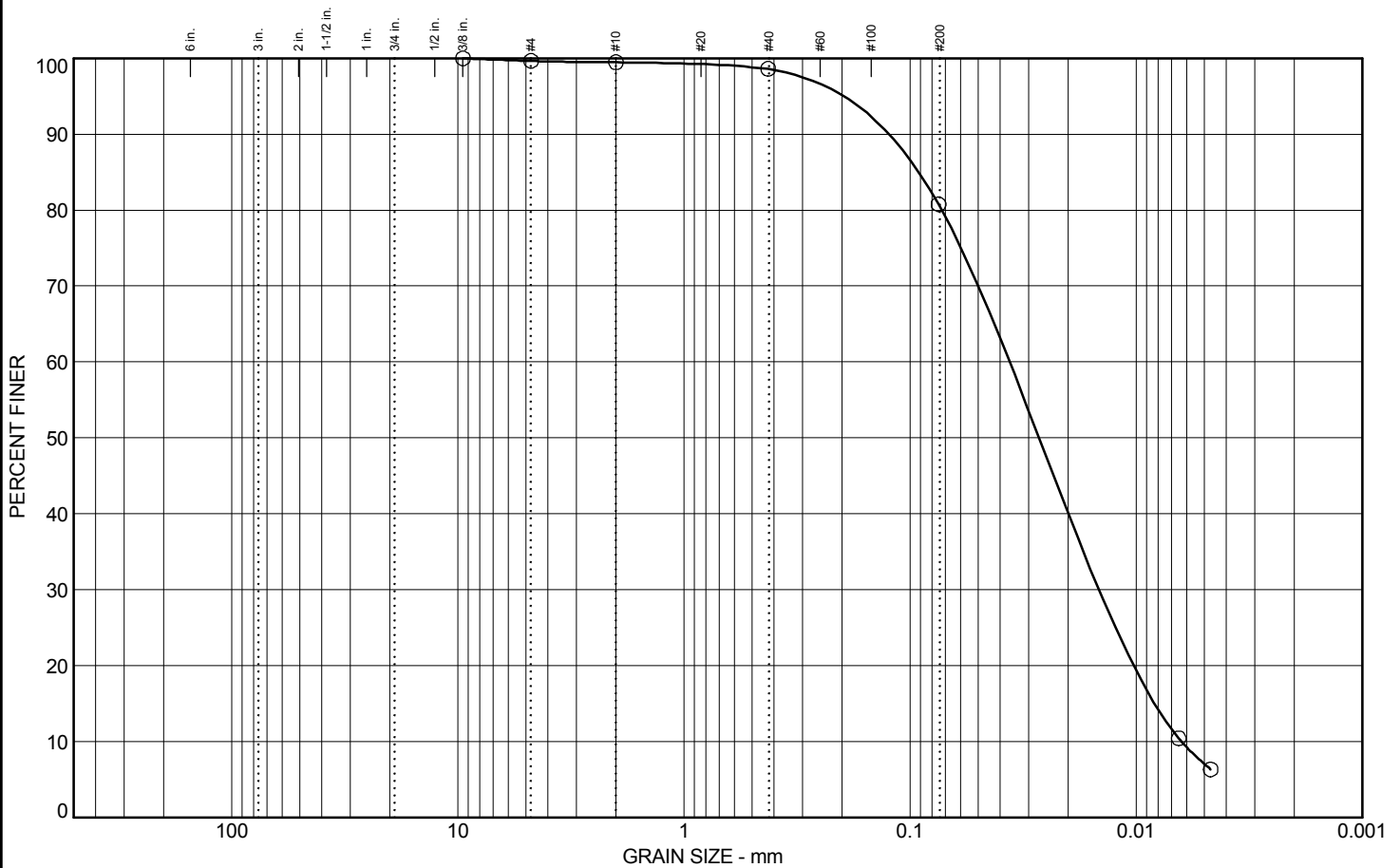
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.5	1.0	17.7	73.7	7.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	99.7		
2	99.5		
0.425	98.6		
0.075	80.8		

* (no specification provided)

Soil Description

non-plastic silt, fine sand

General Characteristics

Moisture Content = 17.5%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.113$

$D_{60} = 0.036$

$D_{50} = 0.026$

$D_{30} = 0.013$

$D_{15} = 0.008$

$D_{10} = 0.006$

$C_u = 5.79$

$C_c = 0.72$

Classification

ODOT = A-4b

Remarks

Group Index = 9

Sample No.: 7

Source of Sample: B-060

Location: -

Date: 3/23/09

Depth / Elev: 16' / 779.28'



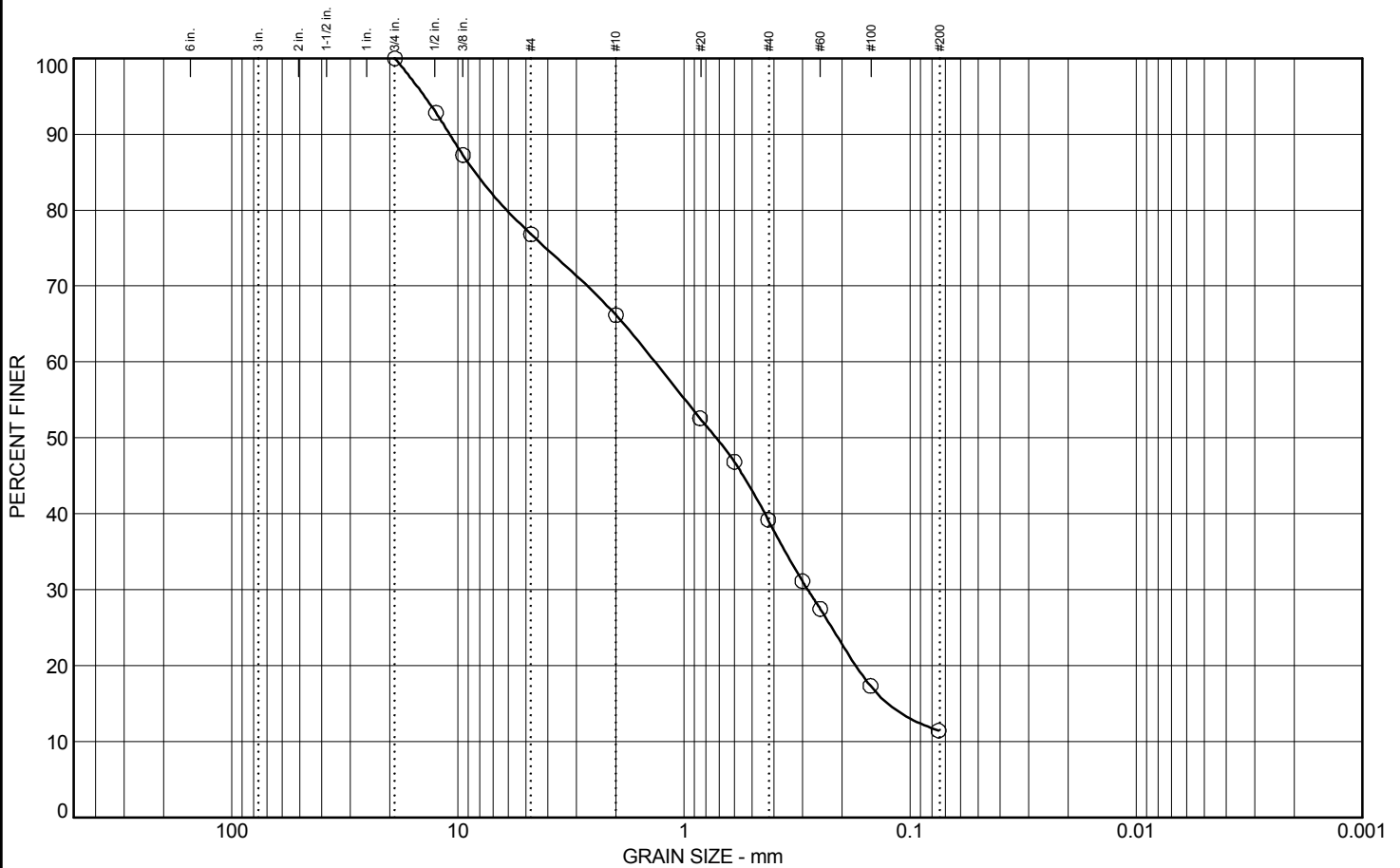
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	33.8	27.2	27.5	11.4	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	92.8		
9.5	87.3		
4.75	76.8		
2	66.2		
0.85	52.6		
0.6	46.8		
0.425	39.2		
0.3	31.1		
0.25	27.5		
0.15	17.3		
0.075	11.4		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 8.6%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 8.177$
 $D_{30} = 0.284$
 $C_u = 21.36$
 $D_{60} = 1.357$
 $D_{15} = 0.114$
 $C_c = 0.93$
 $D_{50} = 0.727$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 12

Location: -

Source of Sample: B-060

Date: 3/23/09

Depth / Elev: 28.5' / 766.78'



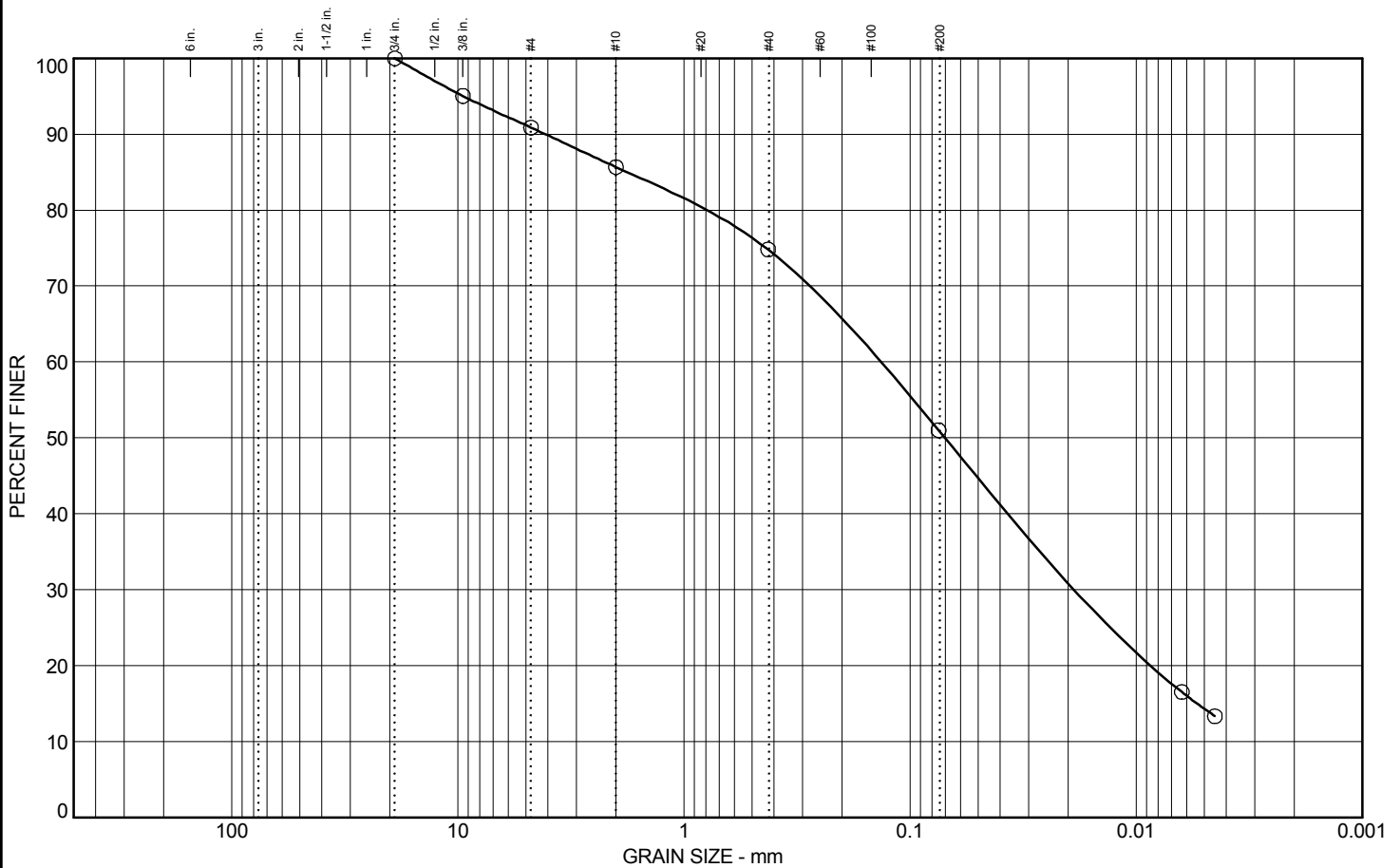
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	14.3	11.0	23.6	36.7	14.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.0		
4.75	90.9		
2	85.7		
0.425	74.8		
0.075	51.0		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.6%

Atterberg Limits

LL= 20

PL= 14

PI= 6

Coefficients

$D_{85} = 1.817$

$D_{60} = 0.145$

$D_{50} = 0.07$

$D_{30} = 0.017$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 15

Source of Sample: B-060

Date: 3/23/09

Location: -

Depth / Elev: 36' / 759.28'



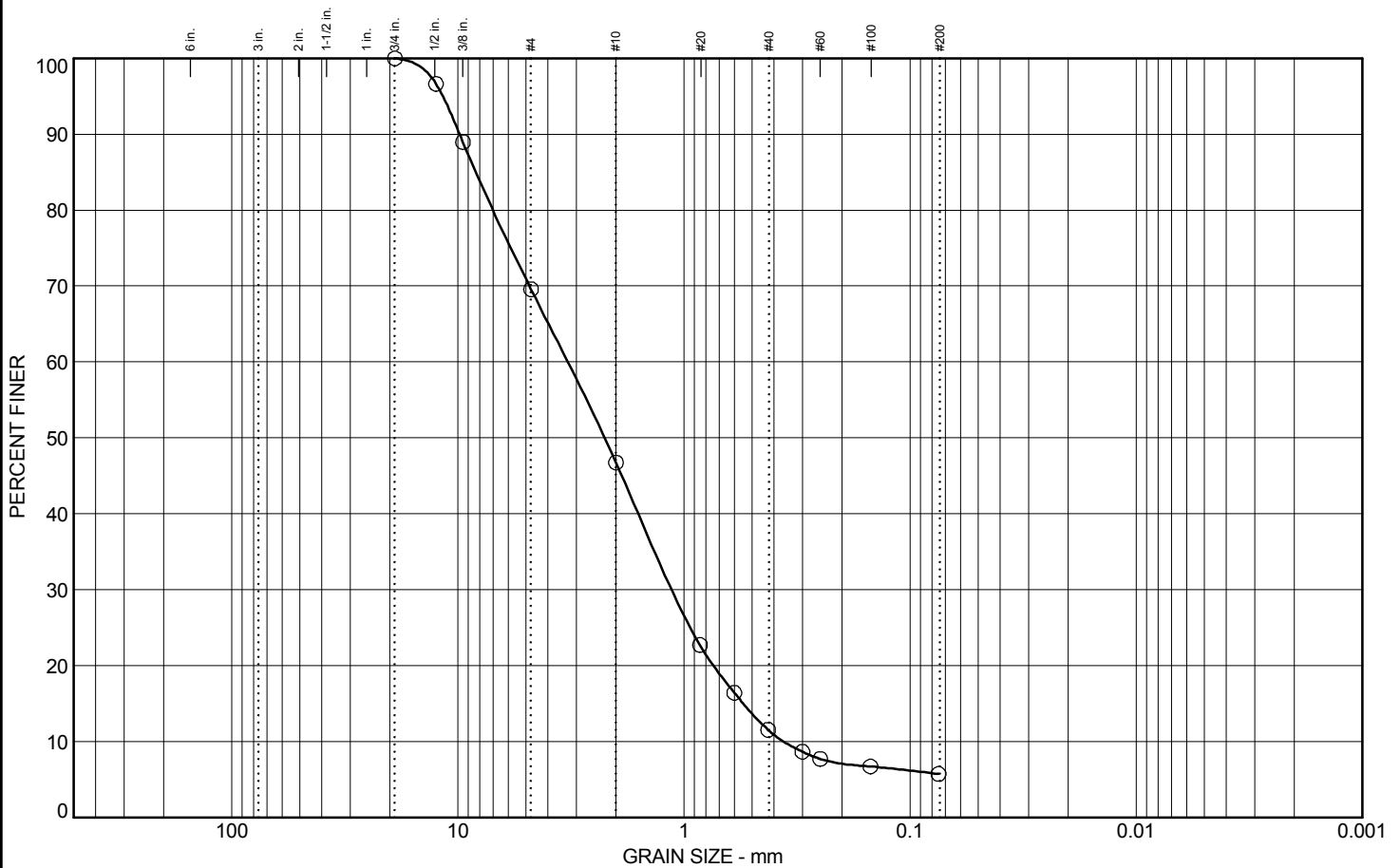
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	53.3	35.3	5.7	5.7	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	96.6		
9.5	89.0		
4.75	69.6		
2	46.7		
0.85	22.7		
0.6	16.4		
0.425	11.5		
0.3	8.6		
0.25	7.7		
0.15	6.7		
0.075	5.7		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 9.9%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 8.243$

$D_{60} = 3.305$

$D_{50} = 2.263$

$D_{30} = 1.102$

$D_{15} = 0.543$

$D_{10} = 0.354$

$C_u = 9.34$

$C_c = 1.04$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 17

Source of Sample: B-060

Location: -

Date: 3/23/09

Depth / Elev: 41' / 754.28'



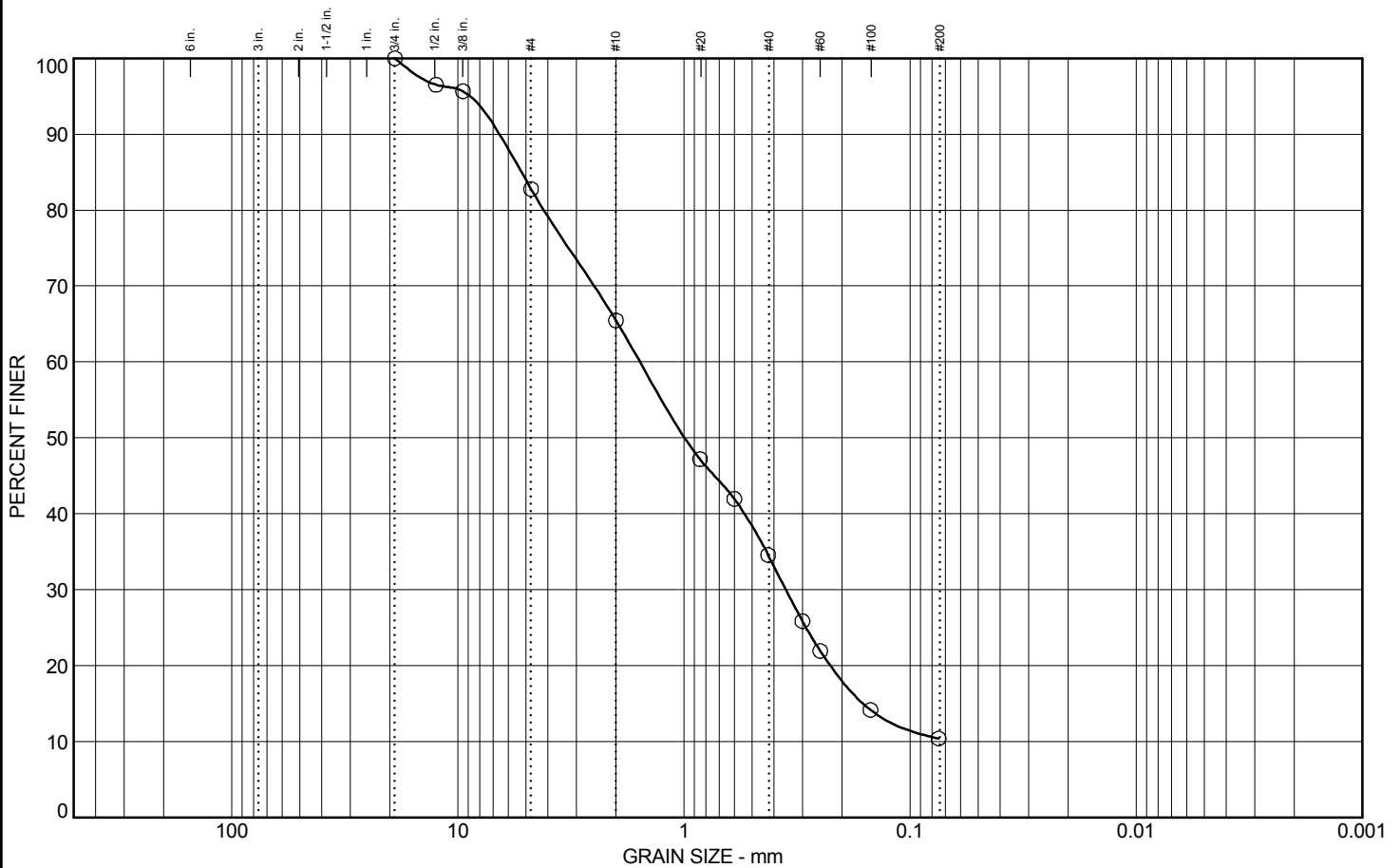
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	34.5	31.2	23.9	10.4	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	96.5		
9.5	95.7		
4.75	82.8		
2	65.5		
0.85	47.2		
0.6	41.9		
0.425	34.6		
0.3	25.8		
0.25	21.9		
0.15	14.1		
0.075	10.4		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 8.7%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 5.354$
 $D_{30} = 0.354$
 $C_u = 22.14$
 $D_{60} = 1.549$
 $D_{15} = 0.159$
 $C_c = 1.16$
 $D_{50} = 0.97$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 2

Location: -

Source of Sample: B-062

Date: 4/10/09

Depth / Elev: 3.5' / 767.33'



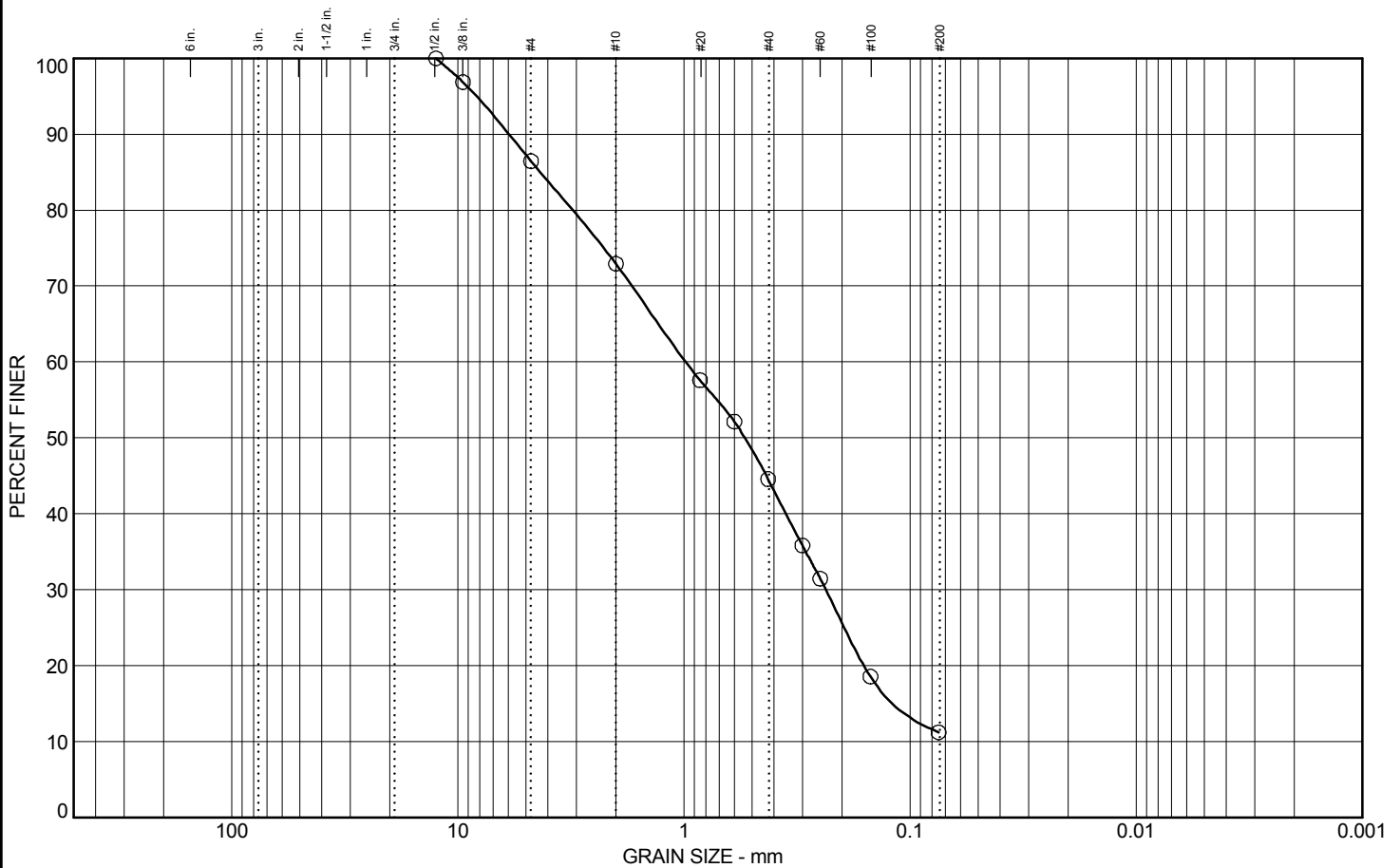
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	27.1	28.7	33.1	11.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	96.9		
4.75	86.4		
2	72.9		
0.85	57.6		
0.6	52.1		
0.425	44.5		
0.3	35.8		
0.25	31.4		
0.15	18.5		
0.075	11.2		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 13.1%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 4.331$

$D_{60} = 0.973$

$D_{50} = 0.545$

$D_{30} = 0.236$

$D_{15} = 0.107$

$D_{10} =$

$C_u = 14.51$

$C_c = 0.86$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 3

Source of Sample: B-062

Date: 4/10/09

Location: -

Depth / Elev: 5' / 765.83'



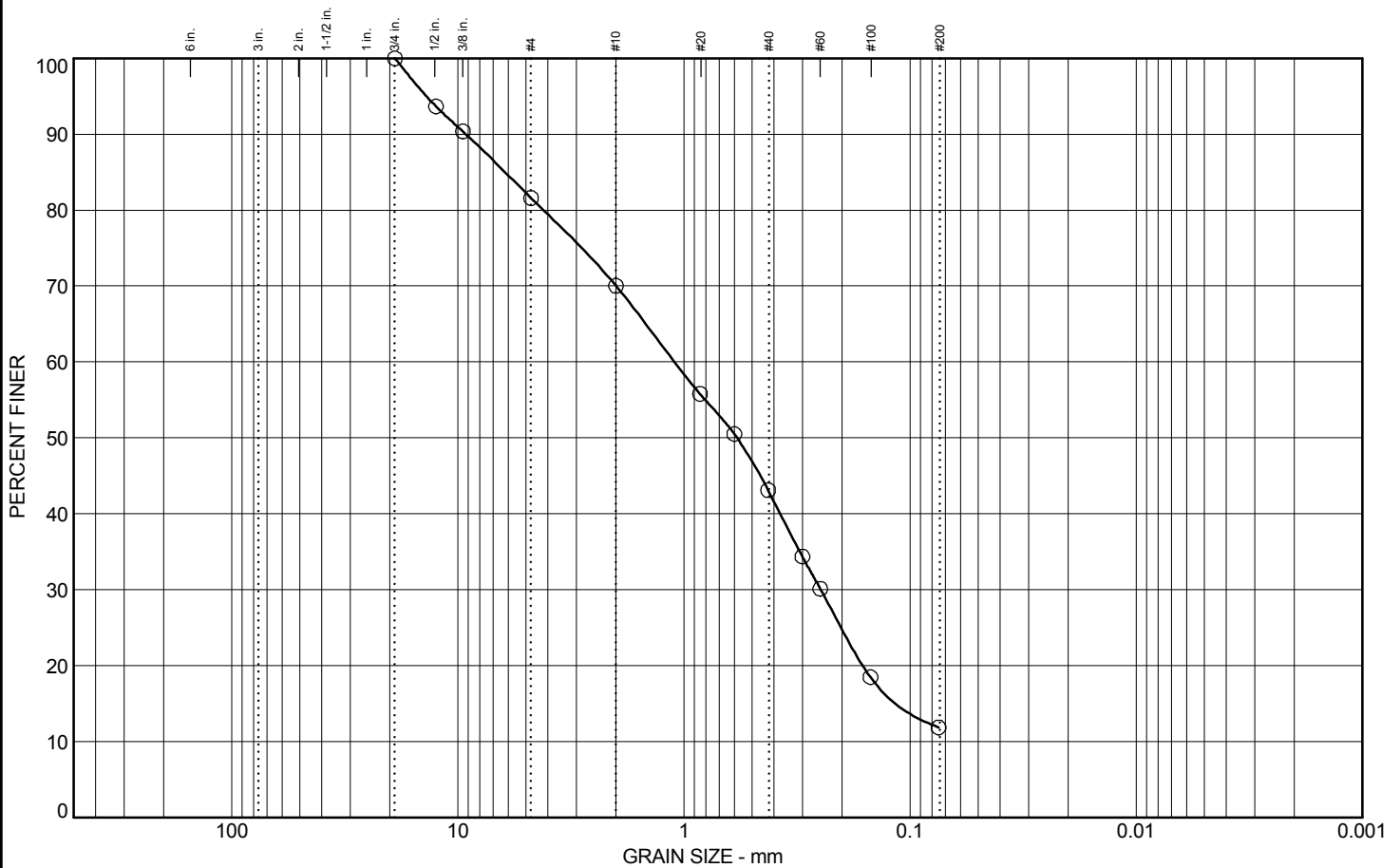
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	30.0	27.2	31.0	11.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	93.7		
9.5	90.4		
4.75	81.6		
2	70.0		
0.85	55.8		
0.6	50.5		
0.425	43.1		
0.3	34.3		
0.25	30.1		
0.15	18.5		
0.075	11.8		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 11.9%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 6.218$
 $D_{30} = 0.249$
 $C_u = 17.68$
 $D_{60} = 1.095$
 $D_{15} = 0.104$
 $C_c = 0.91$
 $D_{50} = 0.587$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 4

Location: -

Source of Sample: B-062

Date: 4/10/09

Depth / Elev: 6.5' / 764.33'



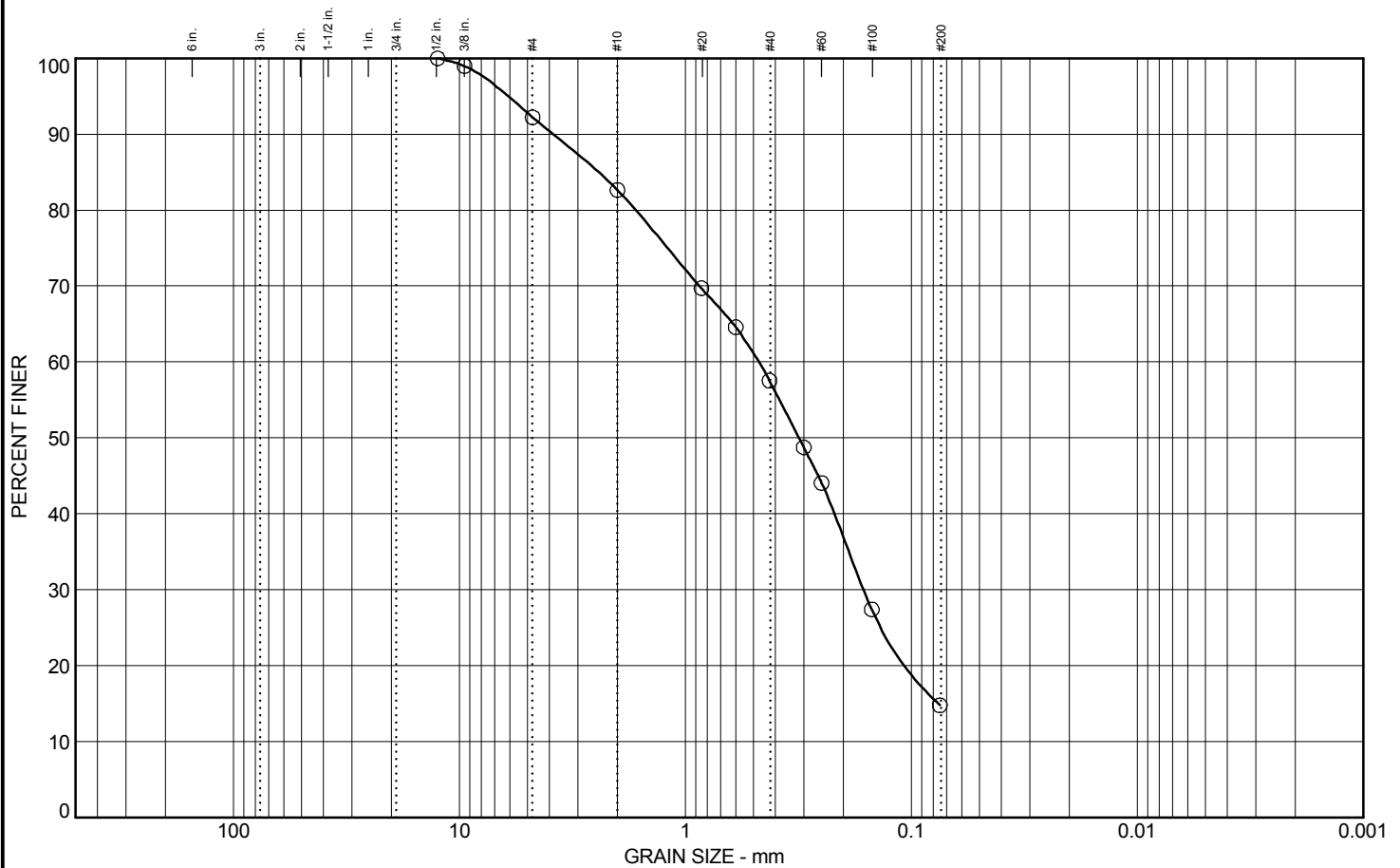
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	17.4	25.4	42.5	14.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	99.0		
4.75	92.2		
2	82.6		
0.85	69.7		
0.6	64.6		
0.425	57.5		
0.3	48.7		
0.25	44.0		
0.15	27.4		
0.075	14.8		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 13.9%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 2.474$
 $D_{30} = 0.163$
 $C_u =$
 $D_{60} = 0.48$
 $D_{15} = 0.076$
 $C_c =$
 $D_{50} = 0.315$
 $D_{10} =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 5

Location: -

Source of Sample: B-062

Date: 4/10/09

Depth / Elev: 8' / 762.83'



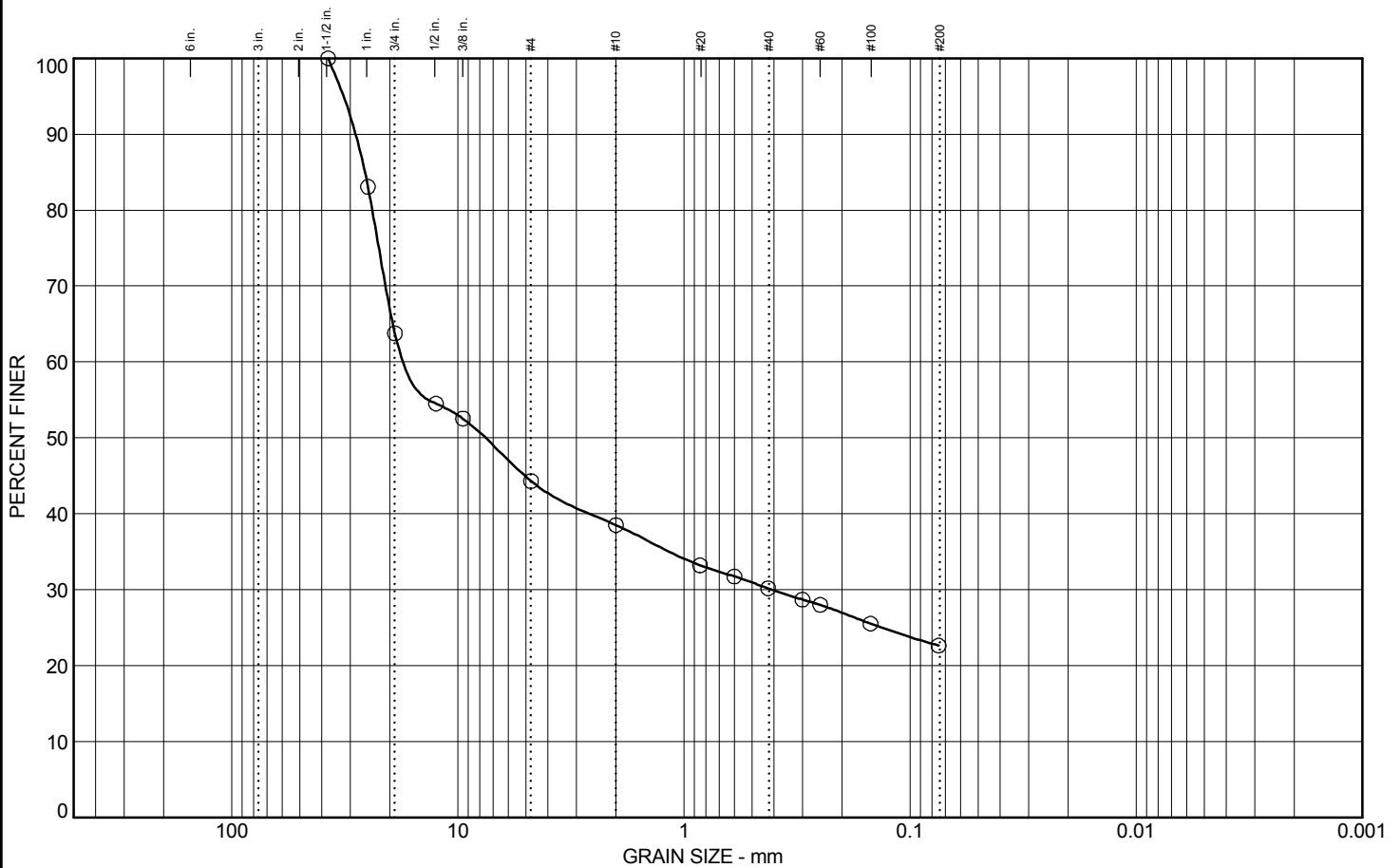
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	36.2	25.3	8.4	7.5	22.6	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
37.5	100.0		
25	83.1		
19	63.8		
12.5	54.5		
9.5	52.5		
4.75	44.3		
2	38.5		
0.85	33.2		
0.6	31.7		
0.425	30.2		
0.3	28.7		
0.25	28.0		
0.15	25.5		
0.075	22.6		

* (no specification provided)

Soil Description

fine to coarse gravel, non-plastic silt, fine to medium sand

General Characteristics

Moisture Content = 3.8%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 26.181$
 $D_{30} = 0.409$
 $C_u =$
 $D_{60} = 16.026$
 $D_{15} =$
 $C_c =$
 $D_{50} = 7.678$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 2

Location: -

Source of Sample: B-063

Date: 4/10/09

Depth / Elev: 3' / 765.99'



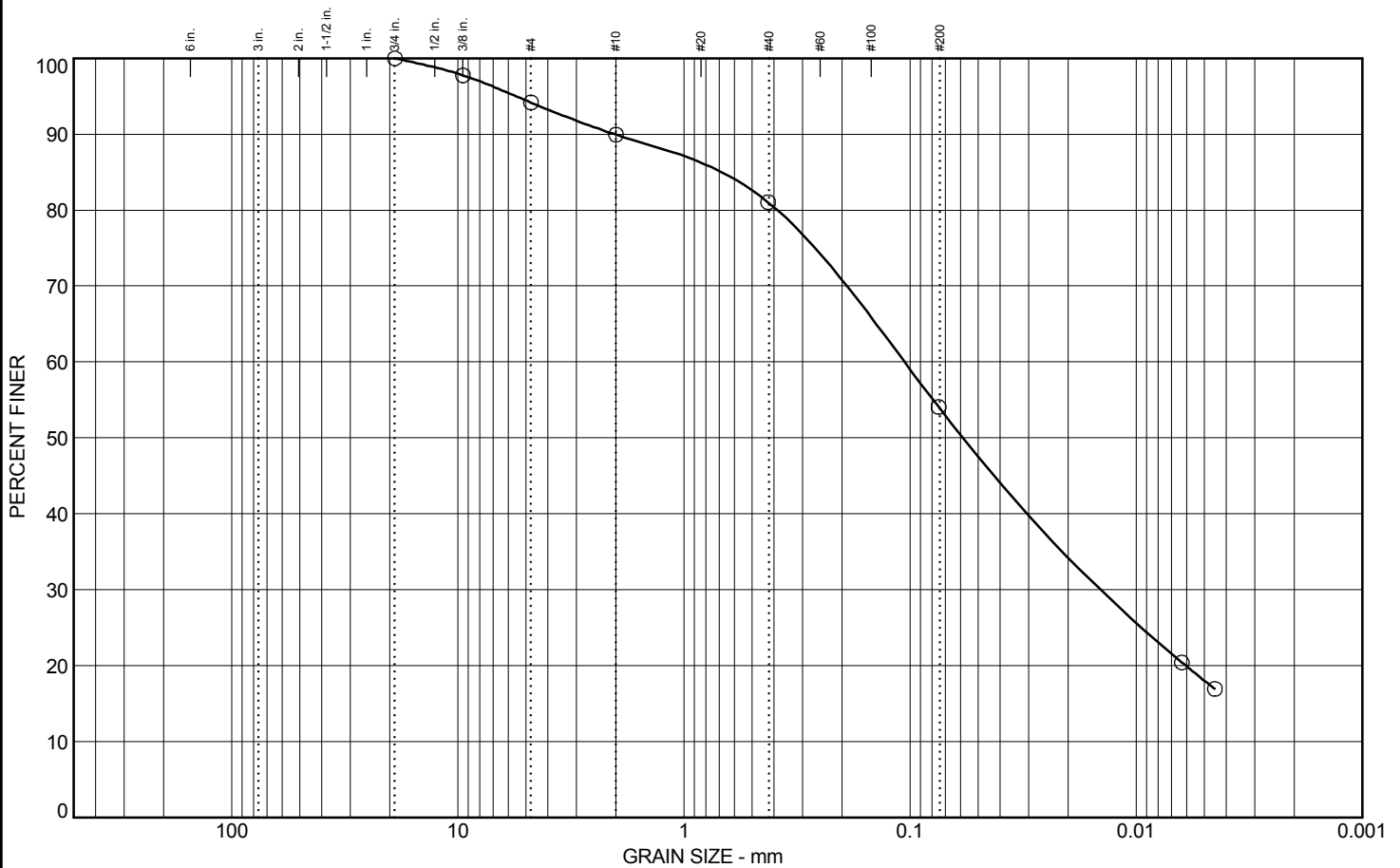
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.0	9.1	26.8	36.1	18.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	97.8		
4.75	94.2		
2	90.0		
0.425	81.0		
0.075	54.1		

* (no specification provided)

Soil Description

low plasticity clay, fine sand

General Characteristics

Moisture Content = 8.5%

Atterberg Limits

LL= 20

PL= 13

PI= 7

Coefficients

$D_{85} = 0.845$

$D_{60} = 0.11$

$D_{50} = 0.056$

$D_{30} = 0.013$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 3

Source of Sample: B-063

Location: -

Date: 4/10/09

Depth / Elev: 4.5' / 764.49'



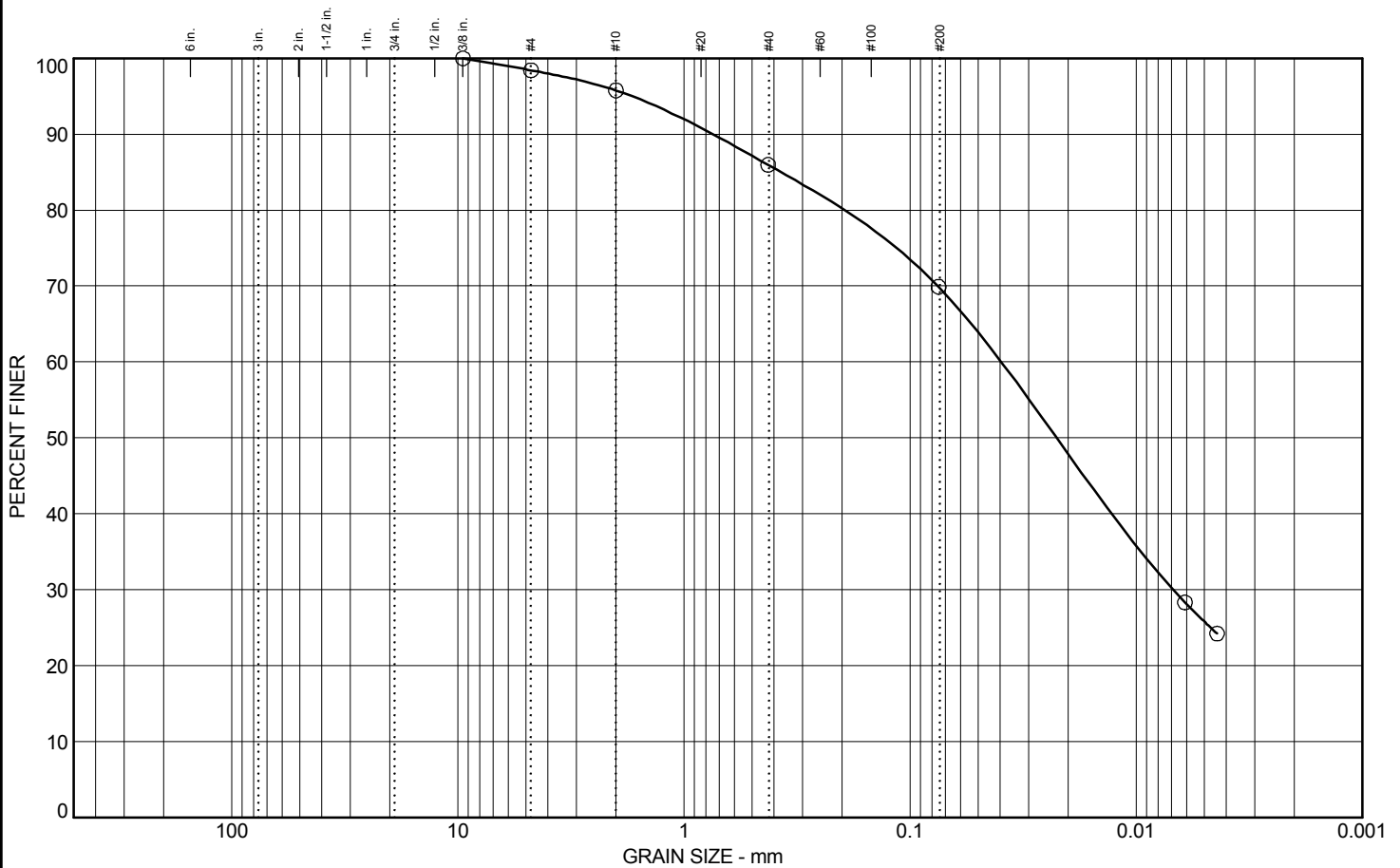
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	4.2	9.9	16.0	44.1	25.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	98.4		
2	95.8		
0.425	86.0		
0.075	69.9		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.5%

Atterberg Limits

LL= 25

PL= 15

PI= 10

Coefficients

$D_{85} = 0.383$

$D_{60} = 0.041$

$D_{50} = 0.023$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 8

Sample No.: 4

Source of Sample: B-063

Location: -

Date: 4/10/09

Depth / Elev: 6' / 762.99'



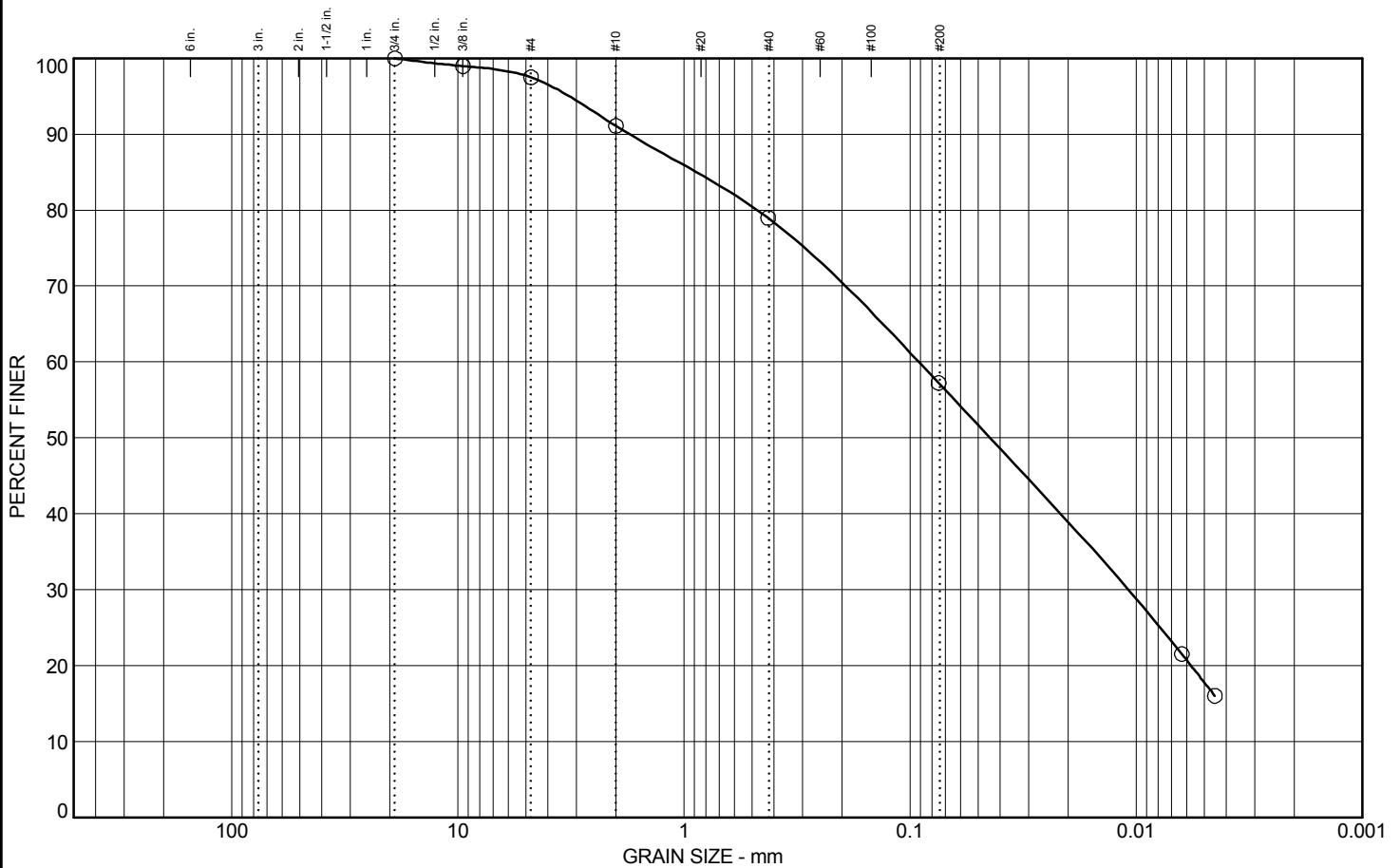
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.9	12.3	21.6	39.5	17.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.0		
4.75	97.5		
2	91.1		
0.425	79.0		
0.075	57.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.0%

Atterberg Limits

LL = 22

PL = 15

PI = 7

Coefficients

$D_{85} = 0.919$

$D_{60} = 0.094$

$D_{50} = 0.045$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 5

Source of Sample: B-063

Location: -

Date: 4/10/09

Depth / Elev: 8.5' / 760.49'



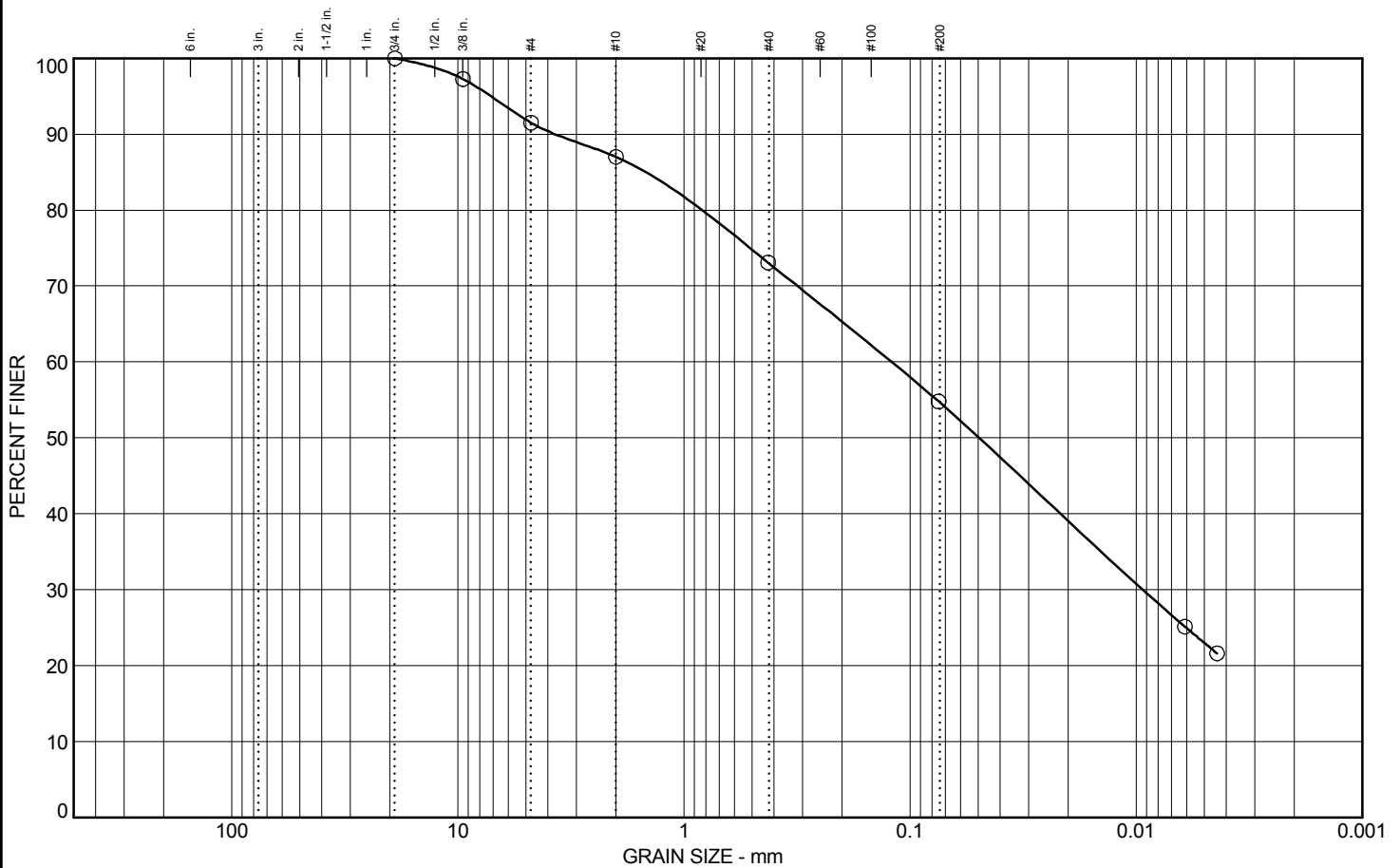
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	13.0	14.0	18.2	31.8	23.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	97.3		
4.75	91.5		
2	87.0		
0.425	73.1		
0.075	54.8		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.4%

Atterberg Limits

LL = 23

PL = 14

PI = 9

Coefficients

$D_{85} = 1.599$

$D_{60} = 0.123$

$D_{50} = 0.05$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 1

Source of Sample: B-064

Location: -

Date: 4/10/09

Depth / Elev: 1.5' / 766.77'



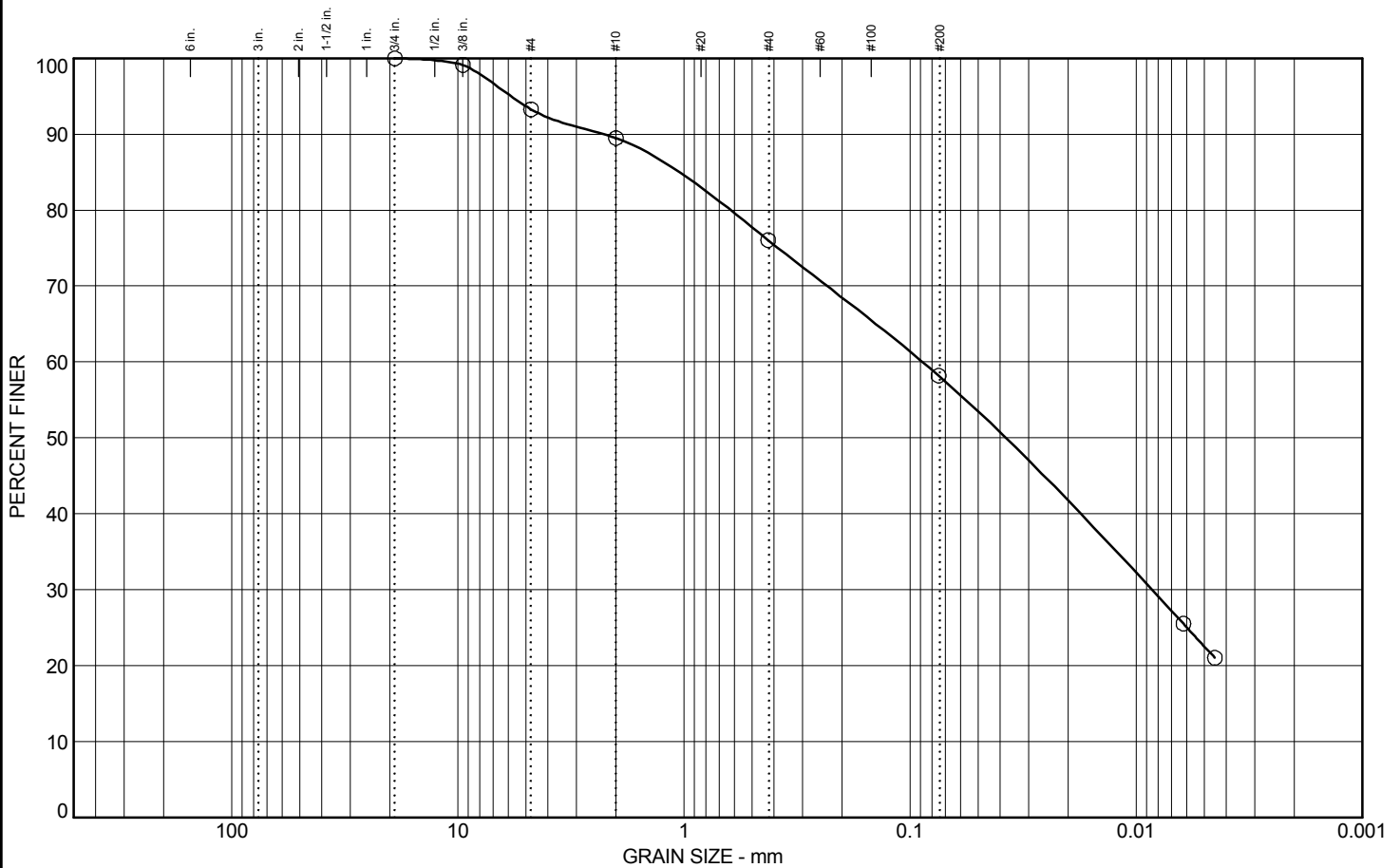
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.5	13.6	17.7	35.7	22.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.1		
4.75	93.3		
2	89.5		
0.425	76.0		
0.075	58.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.2%

Atterberg Limits

LL = 22

PL = 14

PI = 8

Coefficients

$D_{85} = 1.192$

$D_{30} = 0.009$

$C_u =$

$D_{60} = 0.089$

$D_{15} =$

$C_c =$

$D_{50} = 0.04$

$D_{10} =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 2

Location: -

Source of Sample: B-064

Date: 4/10/09

Depth / Elev: 3' / 765.27'



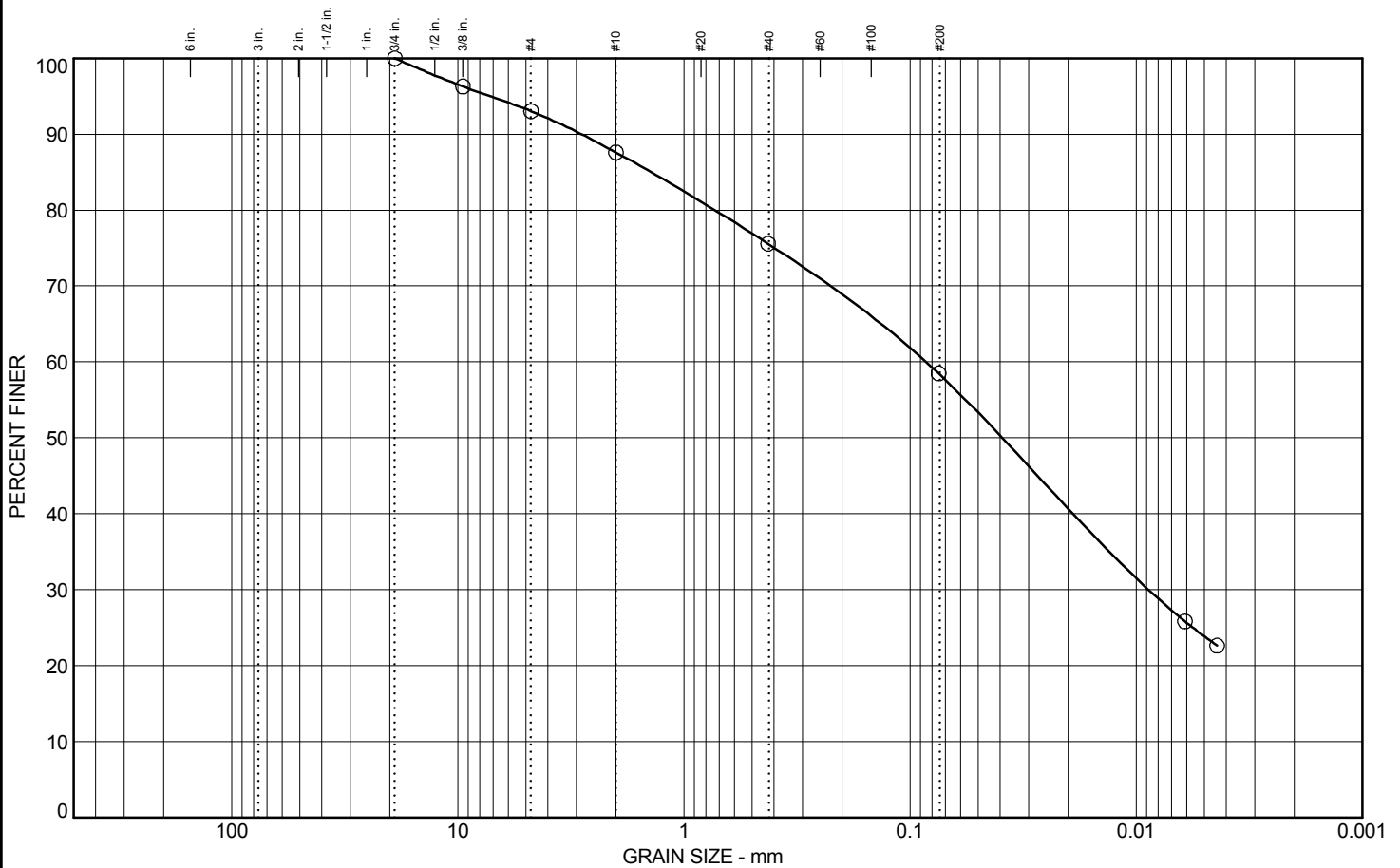
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.4	12.1	17.0	34.6	23.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.3		
4.75	93.0		
2	87.6		
0.425	75.6		
0.075	58.5		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.7%

Atterberg Limits

LL= 23

PL= 15

PI= 8

Coefficients

$D_{85} = 1.431$

$D_{60} = 0.087$

$D_{50} = 0.039$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 3

Source of Sample: B-064

Location: -

Date: 4/10/09

Depth / Elev: 4.5' / 763.77'



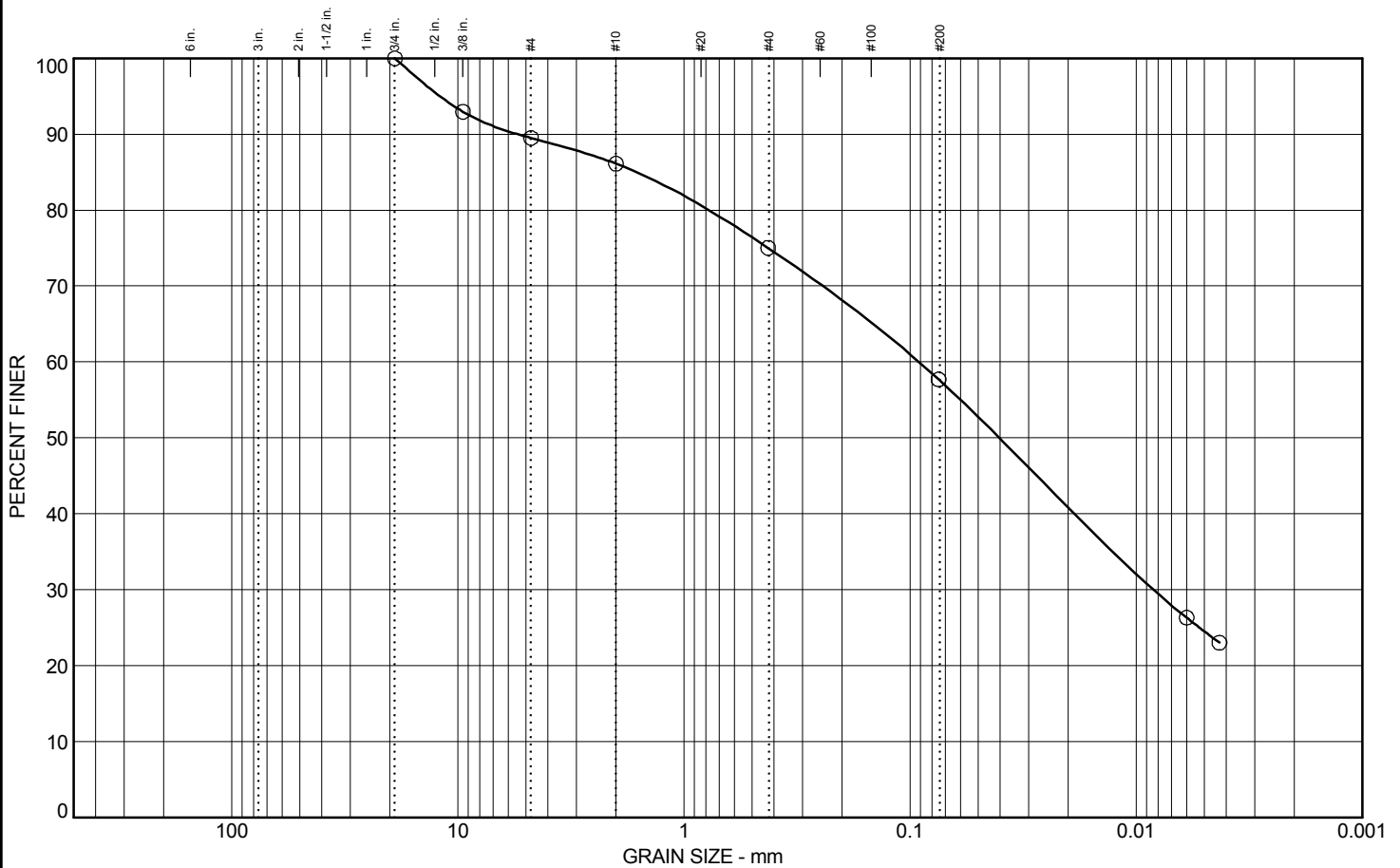
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	13.9	11.2	17.2	33.2	24.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	93.0		
4.75	89.5		
2	86.1		
0.425	75.0		
0.075	57.7		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.2%

Atterberg Limits

LL = 23

PL = 14

PI = 9

Coefficients

$D_{85} = 1.711$

$D_{60} = 0.095$

$D_{50} = 0.04$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 4

Source of Sample: B-064

Location: -

Date: 4/10/09

Depth / Elev: 6' / 762.27'



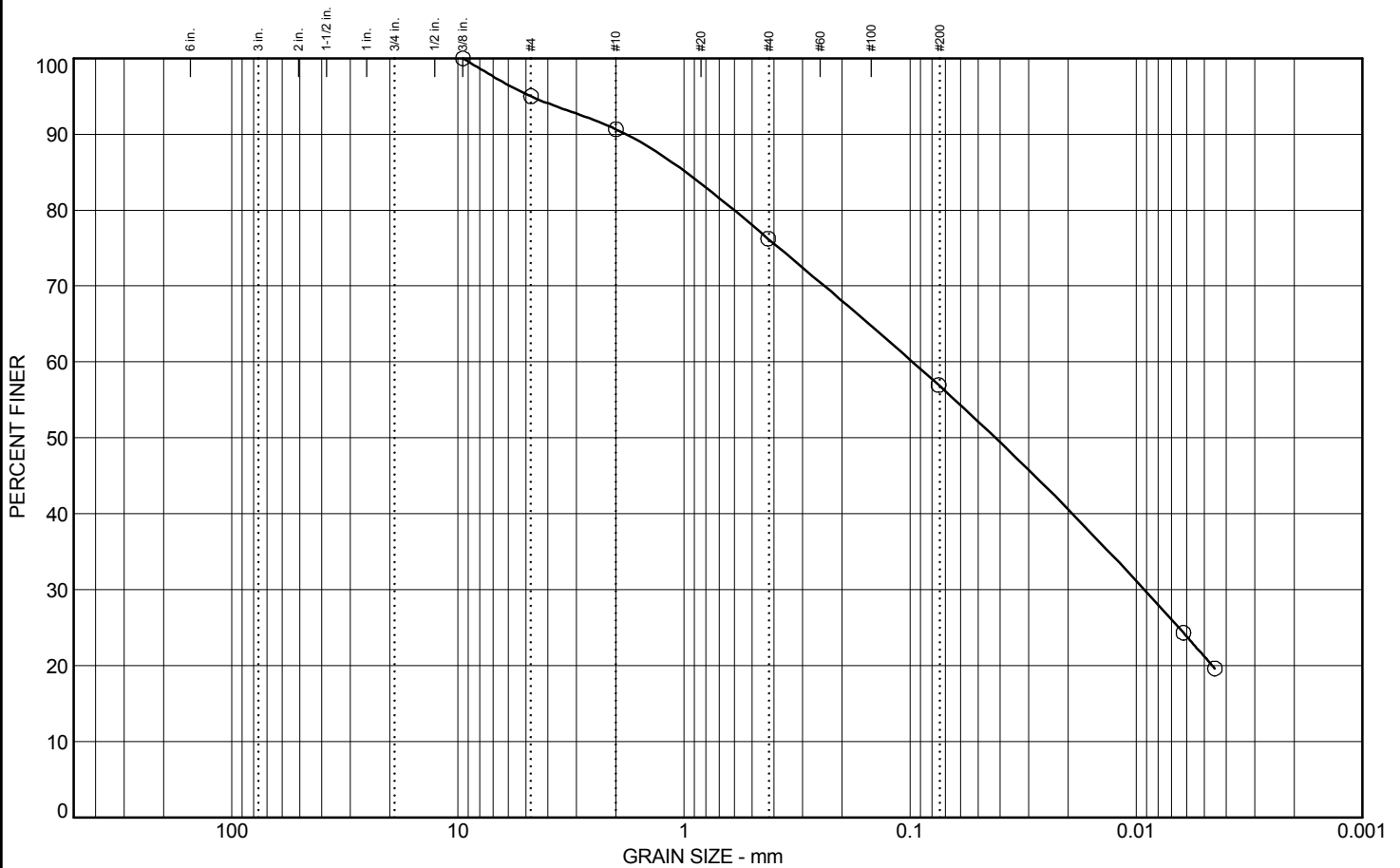
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.3	14.5	19.2	35.8	21.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	95.0		
2	90.7		
0.425	76.2		
0.075	57.0		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.0%

Atterberg Limits

LL= 25

PL= 16

PI= 9

Coefficients

$D_{85} = 1.089$

$D_{60} = 0.099$

$D_{50} = 0.044$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 1

Source of Sample: B-065

Location: -

Date: 4/10/09

Depth / Elev: 1' / 768.76'



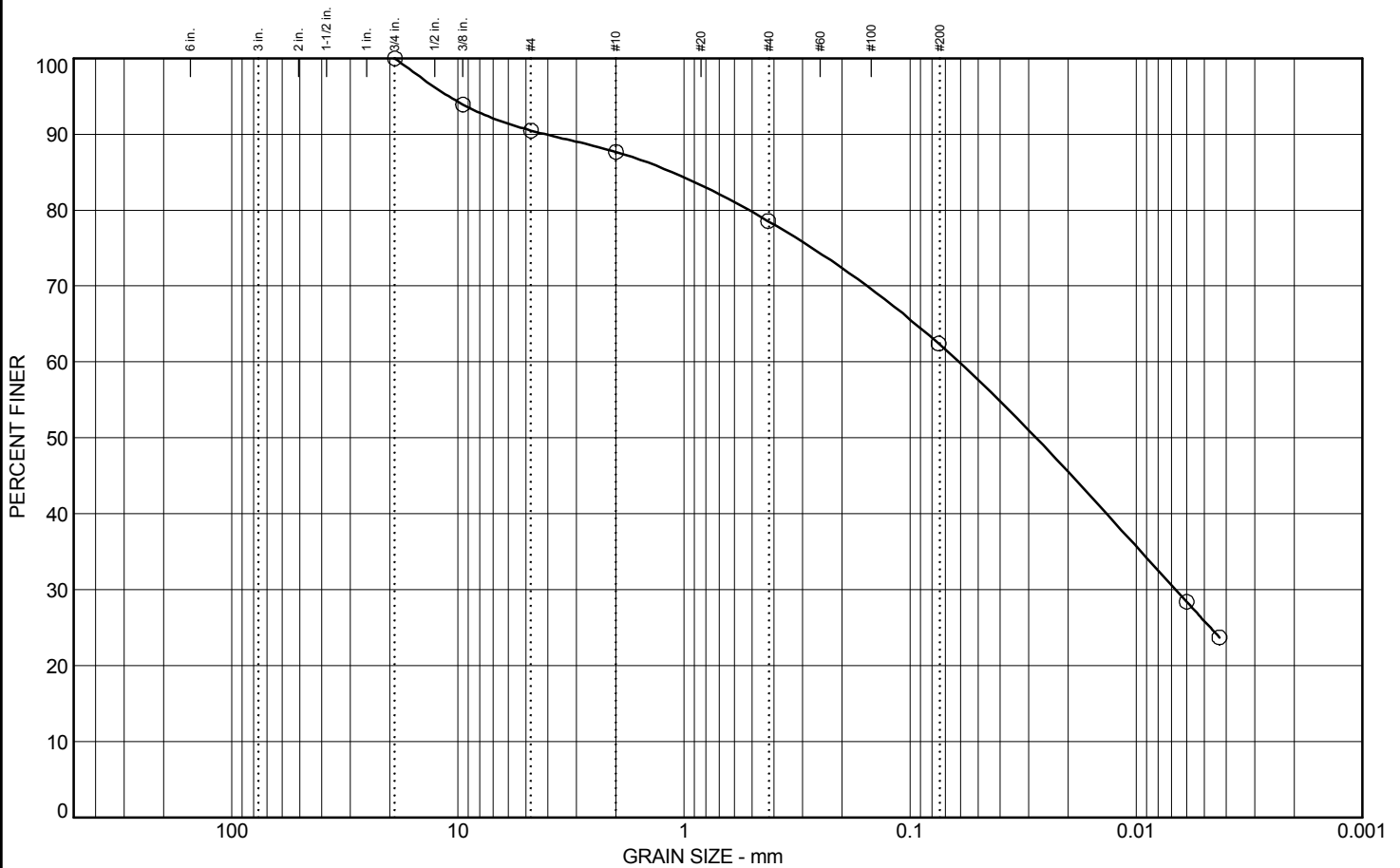
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.3	9.2	16.0	36.6	25.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	93.9		
4.75	90.5		
2	87.7		
0.425	78.6		
0.075	62.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.4%

Atterberg Limits

LL= 25

PL= 16

PI= 9

Coefficients

$D_{85} = 1.27$

$D_{60} = 0.063$

$D_{50} = 0.03$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 3

Location: -

Source of Sample: B-065

Date: 4/10/09

Depth / Elev: 4' / 765.76'



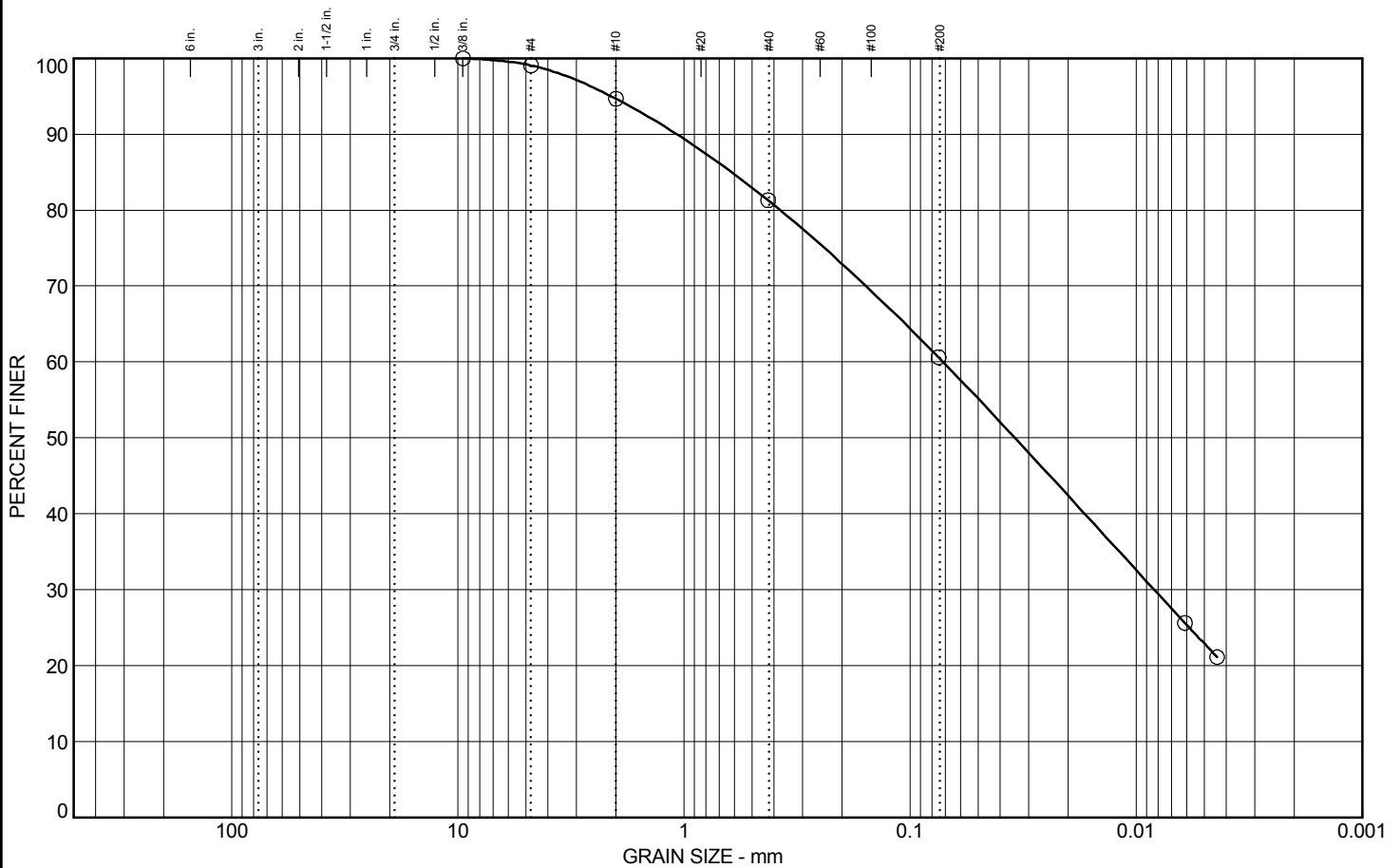
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	5.3	13.5	20.5	37.8	22.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	99.1		
2	94.7		
0.425	81.3		
0.075	60.6		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.0%

Atterberg Limits

LL = 24

PL = 15

PI = 9

Coefficients

$D_{85} = 0.653$

$D_{60} = 0.072$

$D_{50} = 0.035$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 4

Source of Sample: B-065

Location: -

Date: 4/10/09

Depth / Elev: 5.5' / 764.26'



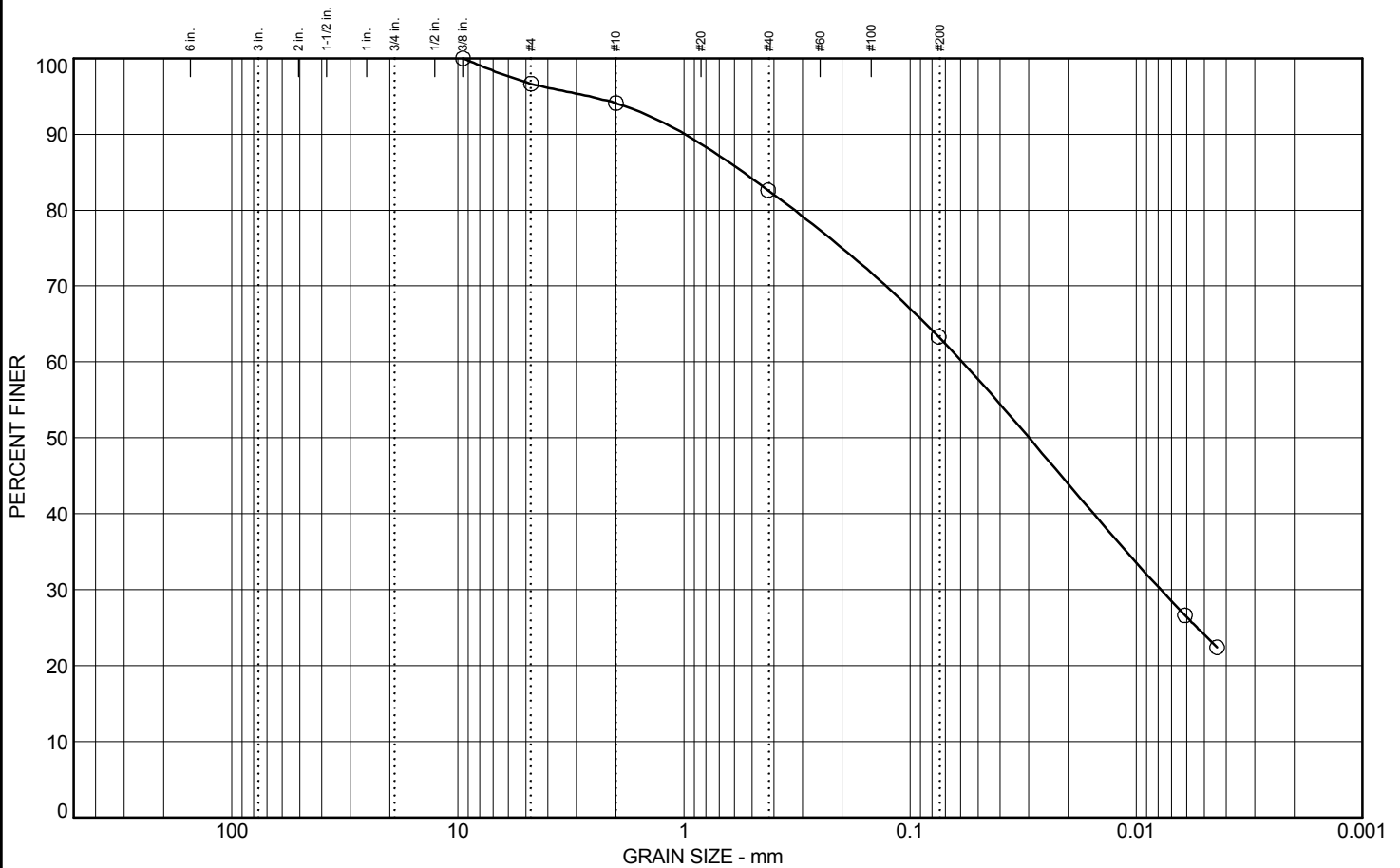
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	5.9	11.6	19.2	39.3	24.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	96.7		
2	94.1		
0.425	82.6		
0.075	63.3		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 12.2%

Atterberg Limits

LL= 23

PL= 14

PI= 9

Coefficients

$D_{85} = 0.587$

$D_{60} = 0.06$

$D_{50} = 0.03$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 2

Source of Sample: B-068

Date: 4/25/09

Location: -

Depth / Elev: 3.5' / 766.82'



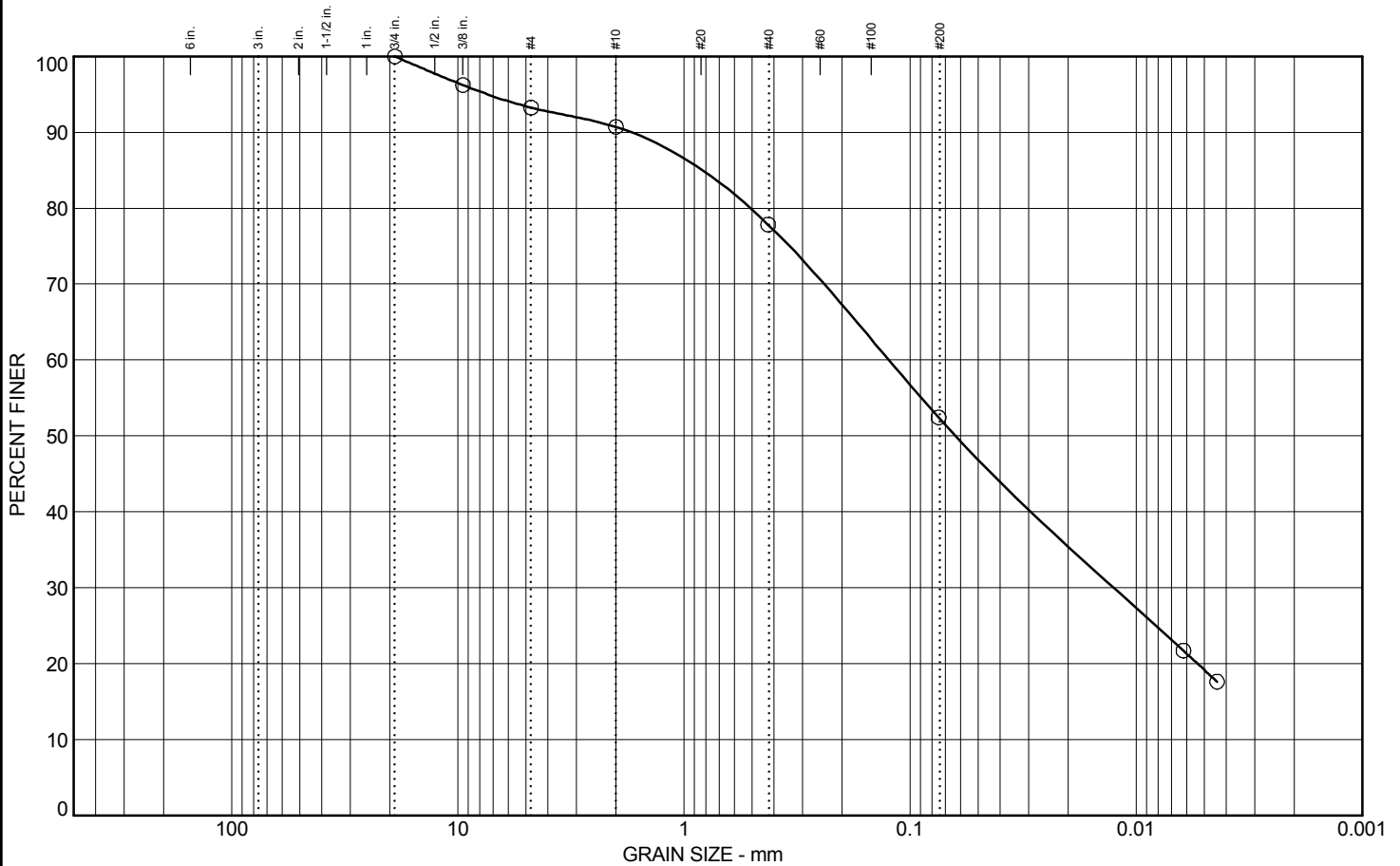
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.3	13.0	25.2	33.3	19.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.2		
4.75	93.3		
2	90.7		
0.425	77.8		
0.075	52.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 13.2%

Atterberg Limits

LL= 21

PL= 14

PI= 7

Coefficients

$D_{85} = 1.006$

$D_{60} = 0.126$

$D_{50} = 0.062$

$D_{30} = 0.012$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 3

Source of Sample: B-068

Location: -

Date: 4/25/09

Depth / Elev: 5' / 765.32'



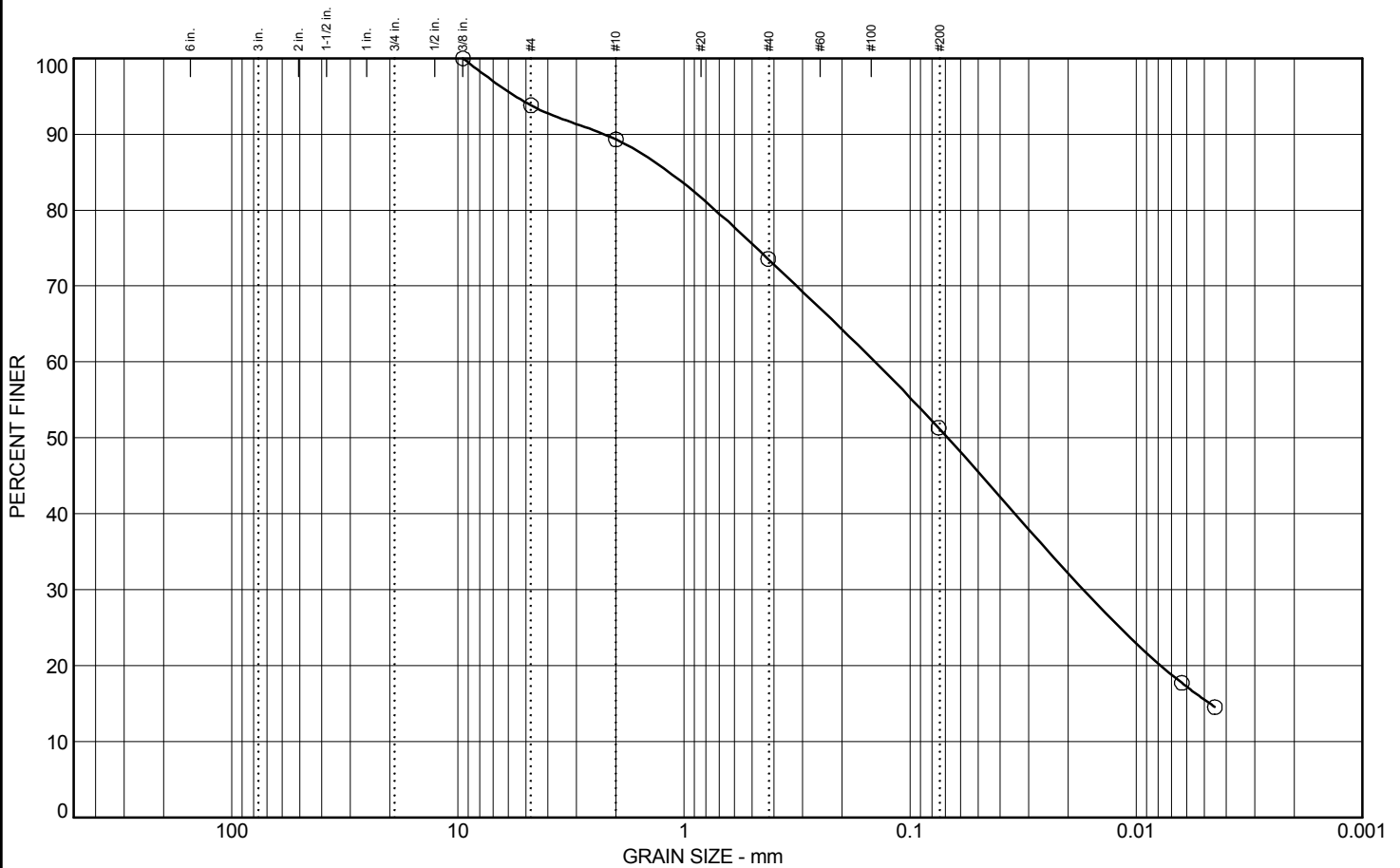
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.7	15.9	22.1	35.8	15.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	93.8		
2	89.3		
0.425	73.6		
0.075	51.3		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.2%

Atterberg Limits

LL = 22

PL = 17

PI = 5

Coefficients

$D_{85} = 1.308$

$D_{60} = 0.148$

$D_{50} = 0.068$

$D_{30} = 0.016$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 4

Location: -

Source of Sample: B-068

Date: 4/25/09

Depth / Elev: 6.5' / 763.82'



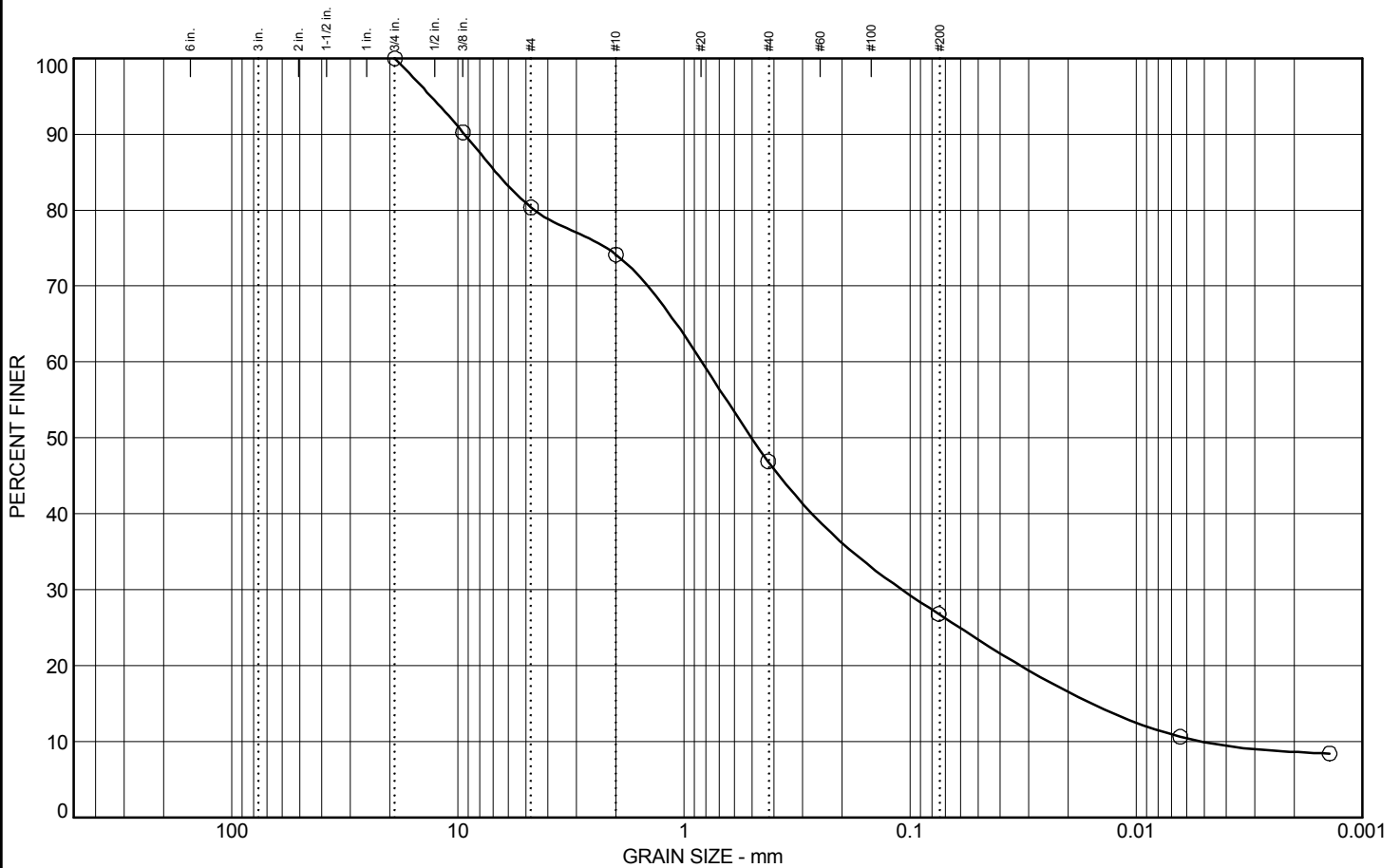
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	25.9	27.4	20.0	16.5	10.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	90.2		
4.75	80.3		
2	74.1		
0.425	46.9		
0.075	26.8		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay, fine gravel

General Characteristics

Moisture Content = 6.7%

Atterberg Limits

LL= 22

PL= 16

PI= 6

Coefficients

$D_{85} = 6.58$

$D_{60} = 0.895$

$D_{50} = 0.507$

$D_{30} = 0.099$

$D_{15} = 0.012$

$D_{10} = 0.004$

$C_u = 211.70$

$C_c = 2.59$

Classification

ODOT = A-2-4

Remarks

Group Index = 0

Sample No.: 5

Source of Sample: B-068

Location: -

Date: 4/25/09

Depth / Elev: 8' / 762.32'



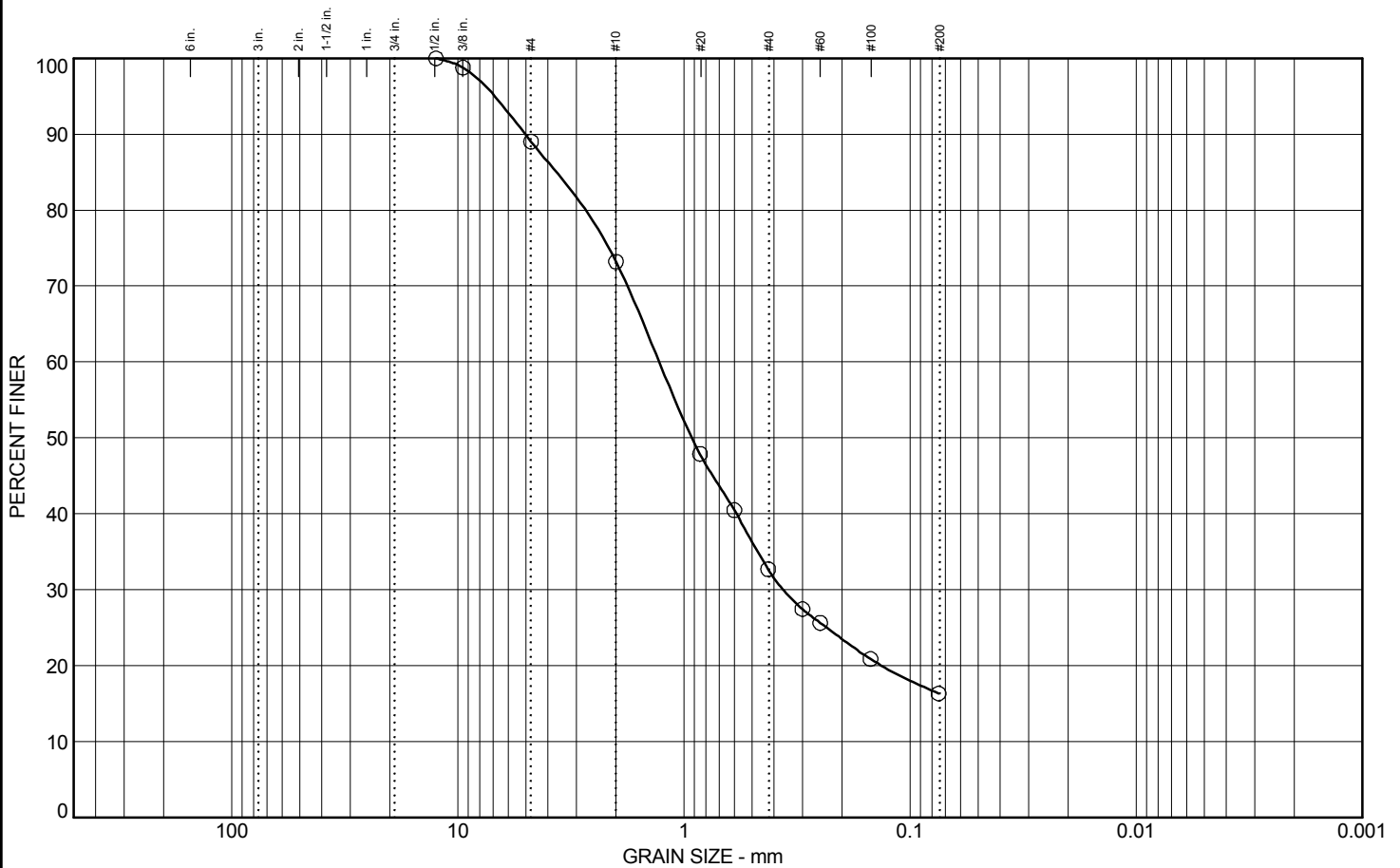
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	26.8	40.7	16.2	16.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	98.8		
4.75	89.0		
2	73.2		
0.85	47.9		
0.6	40.5		
0.425	32.7		
0.3	27.4		
0.25	25.6		
0.15	20.9		
0.075	16.3		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 12.0%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 3.811$

$D_{60} = 1.28$

$D_{50} = 0.913$

$D_{30} = 0.356$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 7

Source of Sample: B-068

Location: -

Date: 4/25/09

Depth / Elev: 11' / 759.32'



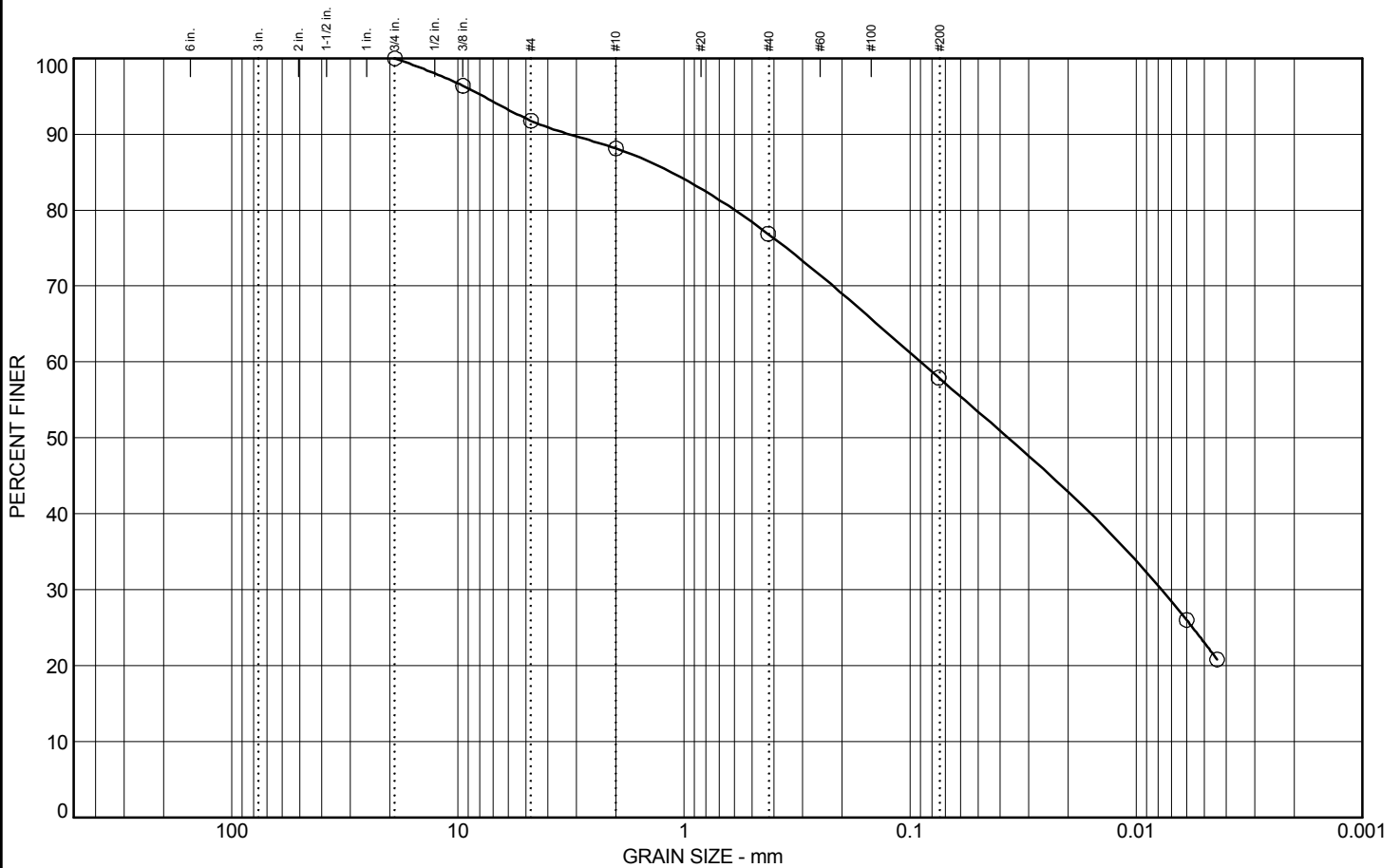
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	11.9	11.4	18.8	35.0	22.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.4		
4.75	91.8		
2	88.1		
0.425	76.9		
0.075	57.9		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.1%

Atterberg Limits

LL = 24

PL = 15

PI = 9

Coefficients

$D_{85} = 1.3$

$D_{60} = 0.091$

$D_{50} = 0.04$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 1

Source of Sample: B-069

Date: 4/22/09

Location: -

Depth / Elev: 2' / 766.32'



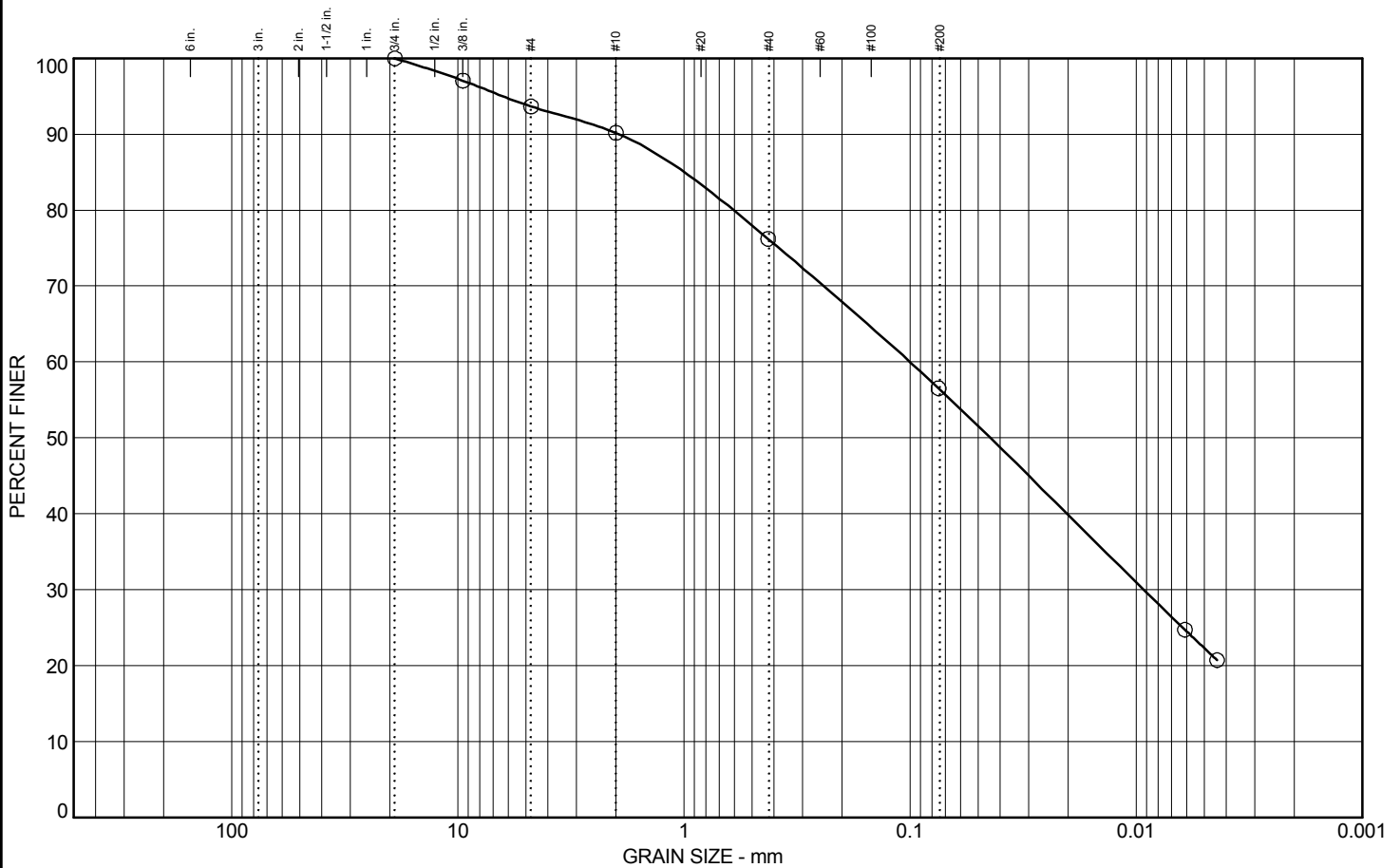
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.8	14.1	19.6	34.3	22.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	97.1		
4.75	93.7		
2	90.2		
0.425	76.2		
0.075	56.5		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.2%

Atterberg Limits

LL= 24

PL= 16

PI= 8

Coefficients

$D_{85} = 1.126$

$D_{60} = 0.102$

$D_{50} = 0.045$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 2

Location: -

Source of Sample: B-069

Date: 4/22/09

Depth / Elev: 3.5' / 764.82'



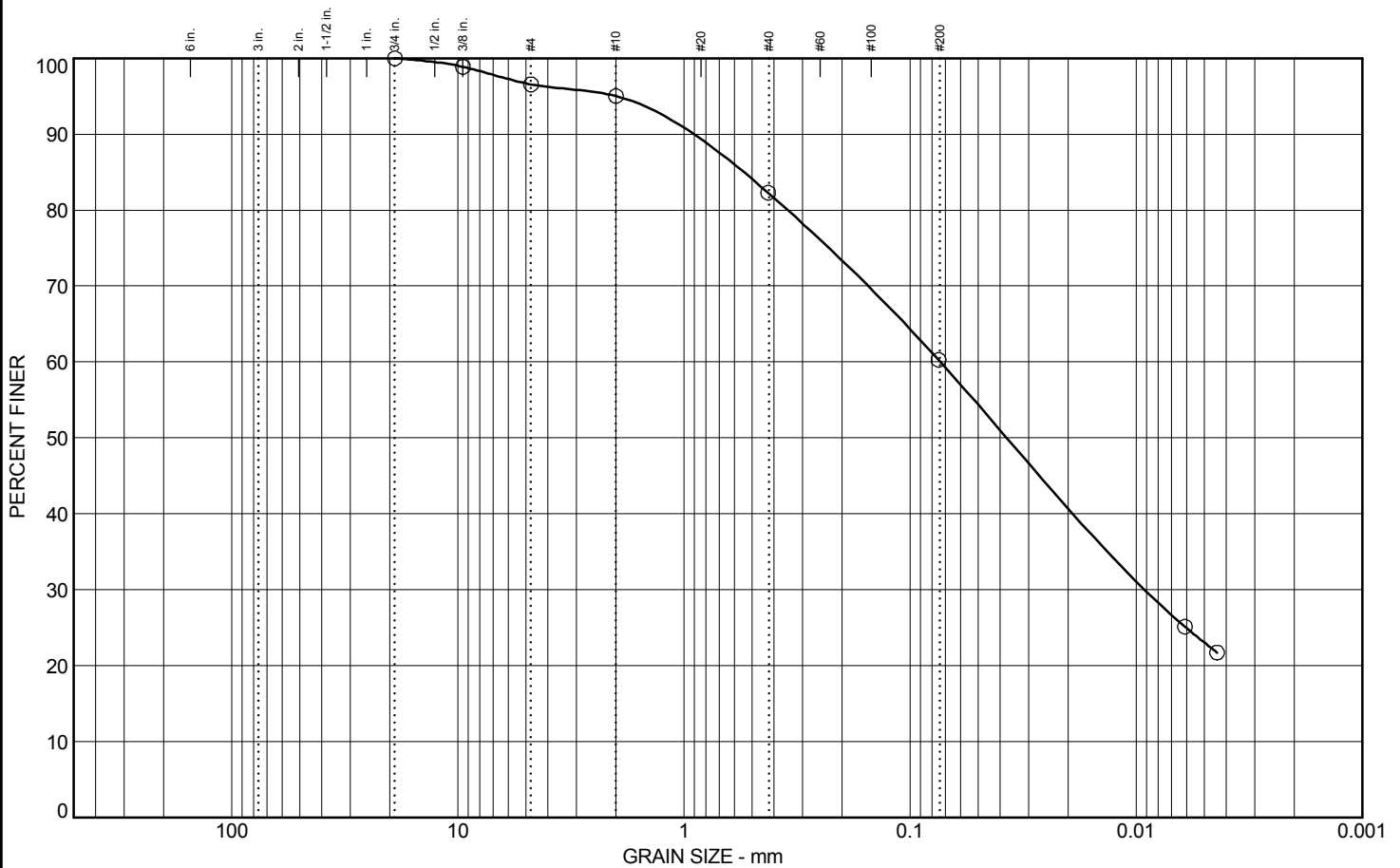
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	5.0	12.9	21.9	37.2	23.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.9		
4.75	96.6		
2	95.0		
0.425	82.3		
0.075	60.3		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.5%

Atterberg Limits

LL= 23

PL= 15

PI= 8

Coefficients

$D_{85} = 0.591$

$D_{60} = 0.074$

$D_{50} = 0.036$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 3

Source of Sample: B-069

Date: 4/22/09

Location: -

Depth / Elev: 5' / 763.32'



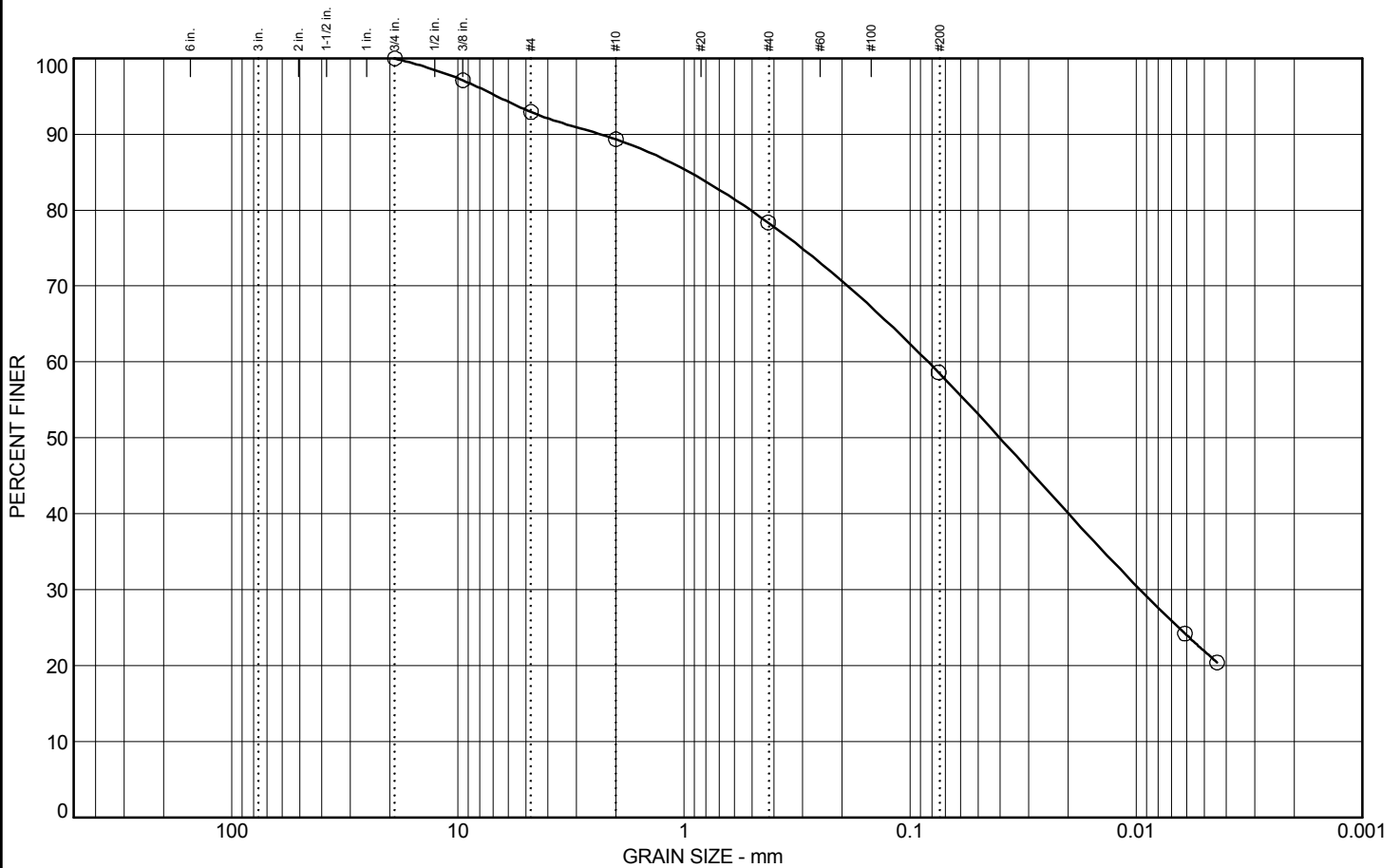
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.7	11.1	19.6	36.7	21.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	97.1		
4.75	92.9		
2	89.3		
0.425	78.4		
0.075	58.6		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.3%

Atterberg Limits

LL= 23

PL= 16

PI= 7

Coefficients

$D_{85} = 1.084$

$D_{60} = 0.085$

$D_{50} = 0.04$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 4

Source of Sample: B-069

Date: 4/22/09

Location: -

Depth / Elev: 6.5' / 761.82'



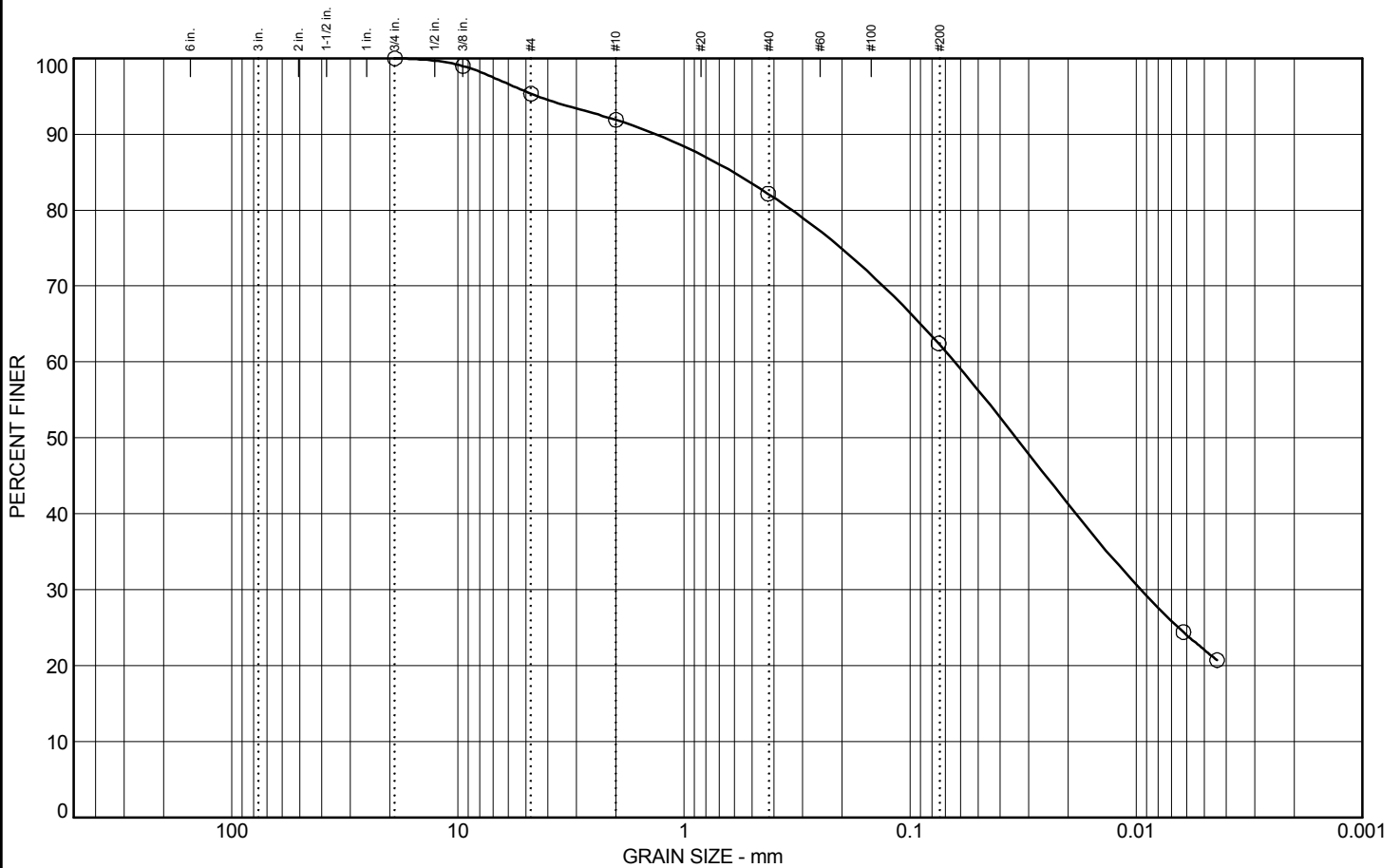
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.1	9.9	19.6	40.4	22.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	99.0		
4.75	95.3		
2	91.9		
0.425	82.2		
0.075	62.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.1%

Atterberg Limits

LL= 21

PL= 13

PI= 8

Coefficients

$D_{85} = 0.667$

$D_{60} = 0.064$

$D_{50} = 0.033$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 1

Source of Sample: B-070

Location: -

Date: 4/14/09

Depth / Elev: 1.5' / 770.01'



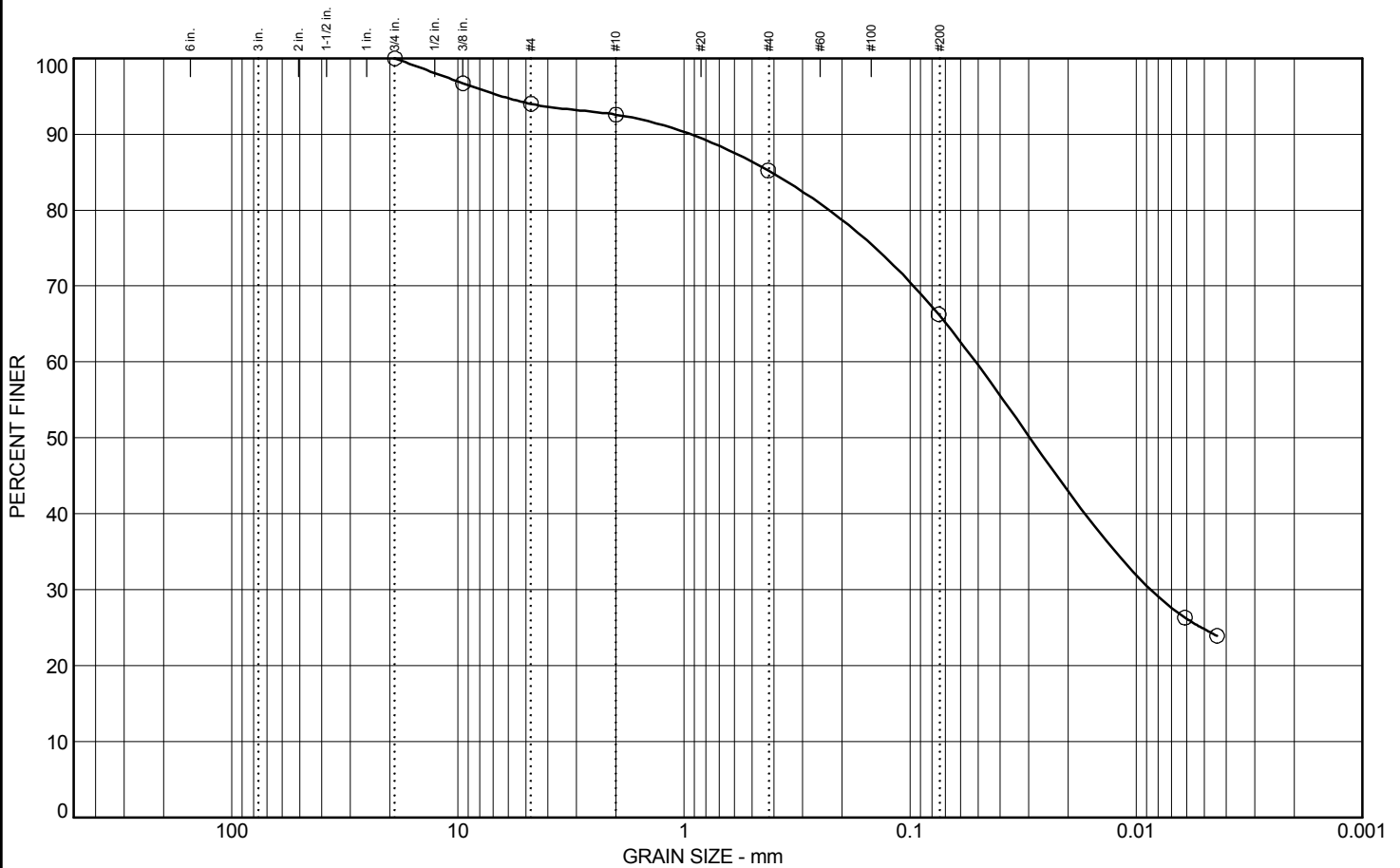
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	7.4	7.5	18.8	41.4	24.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	96.7		
4.75	94.0		
2	92.6		
0.425	85.2		
0.075	66.3		

* (no specification provided)

Soil Description

low plasticity clay, fine sand

General Characteristics

Moisture Content = 10.5%

Atterberg Limits

LL= 21

PL= 13

PI= 8

Coefficients

$D_{85} = 0.417$

$D_{60} = 0.051$

$D_{50} = 0.027$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 7

Sample No.: 2

Source of Sample: B-070

Location: -

Date: 4/14/09

Depth / Elev: 3' / 768.51'



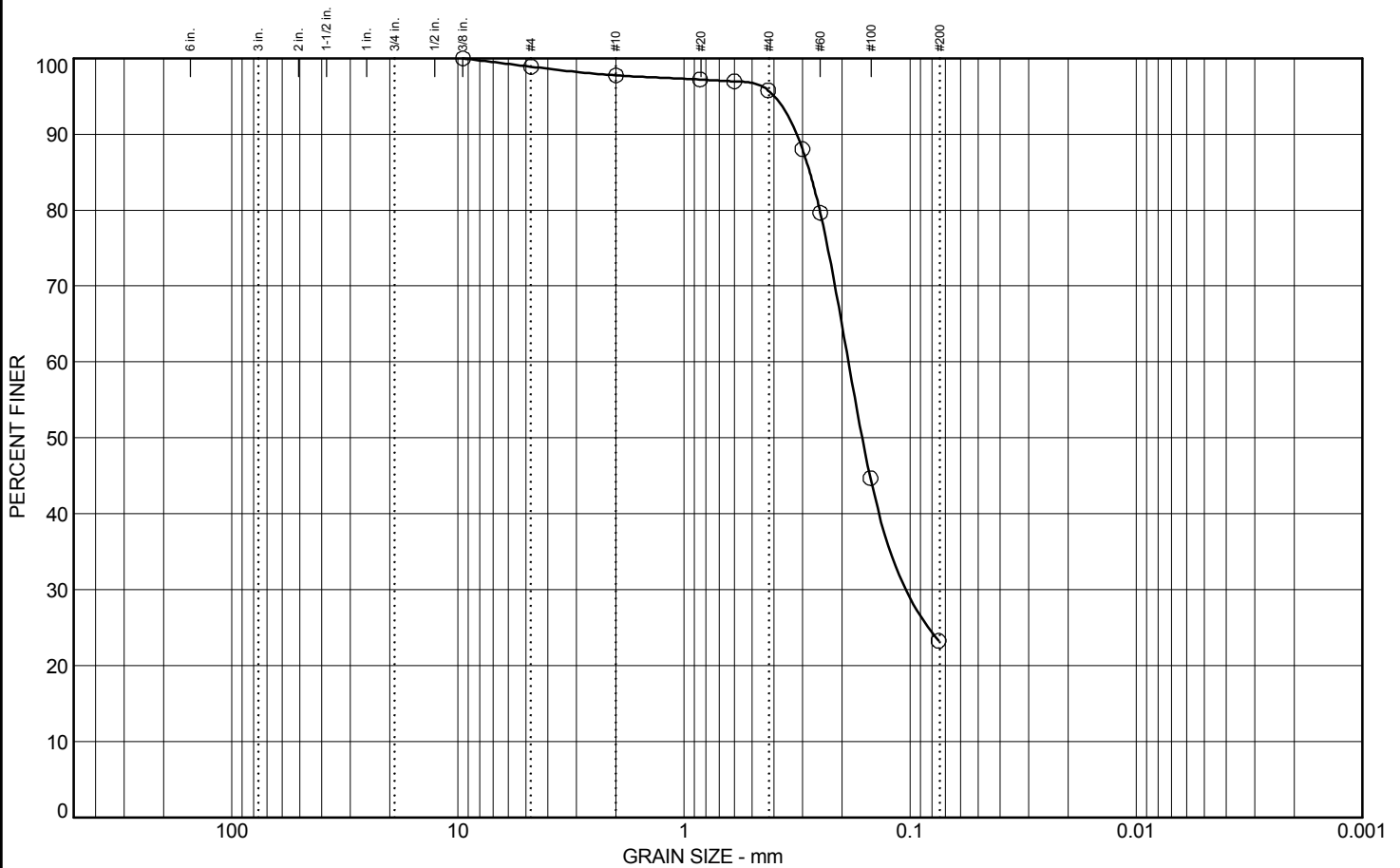
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	2.2	2.2	72.3	23.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	98.9		
2	97.8		
0.85	97.2		
0.6	97.0		
0.425	95.8		
0.3	88.0		
0.25	79.7		
0.15	44.7		
0.075	23.2		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 16.9%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.281$

$D_{60} = 0.188$

$D_{50} = 0.162$

$D_{30} = 0.093$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 3

Source of Sample: B-070

Location: -

Date: 4/14/09

Depth / Elev: 4.5' / 767.01'



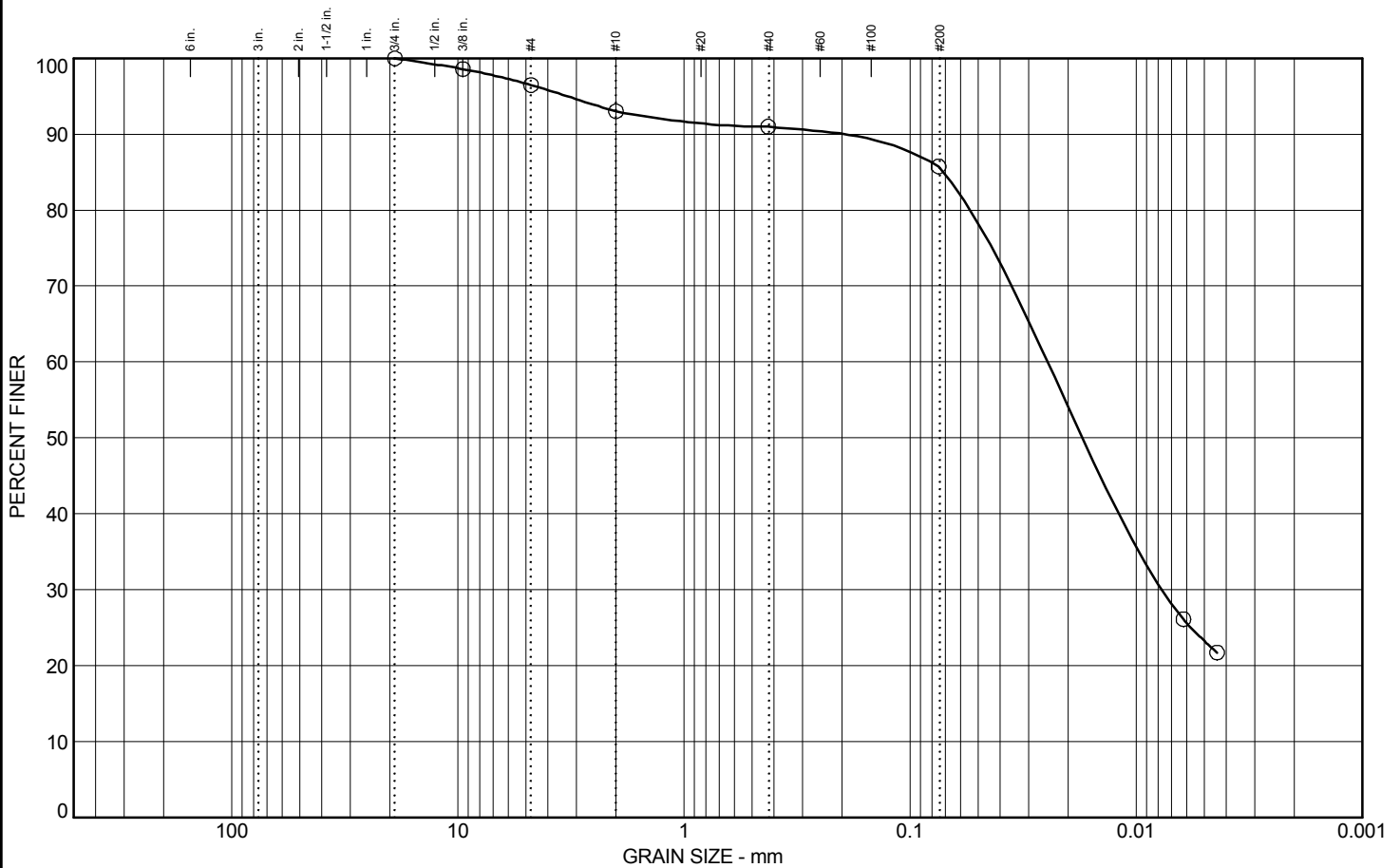
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	7.0	2.1	5.2	62.4	23.3

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.6		
4.75	96.5		
2	93.0		
0.425	91.0		
0.075	85.8		

* (no specification provided)

Soil Description

low plasticity clay

General Characteristics

Moisture Content = 11.3%

Atterberg Limits

LL= 21

PL= 13

PI= 8

Coefficients

$D_{85} = 0.073$

$D_{60} = 0.026$

$D_{50} = 0.017$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4b

Remarks

Group Index = 9

Sample No.: 4

Source of Sample: B-070

Location: -

Date: 4/14/09

Depth / Elev: 6' / 765.51'



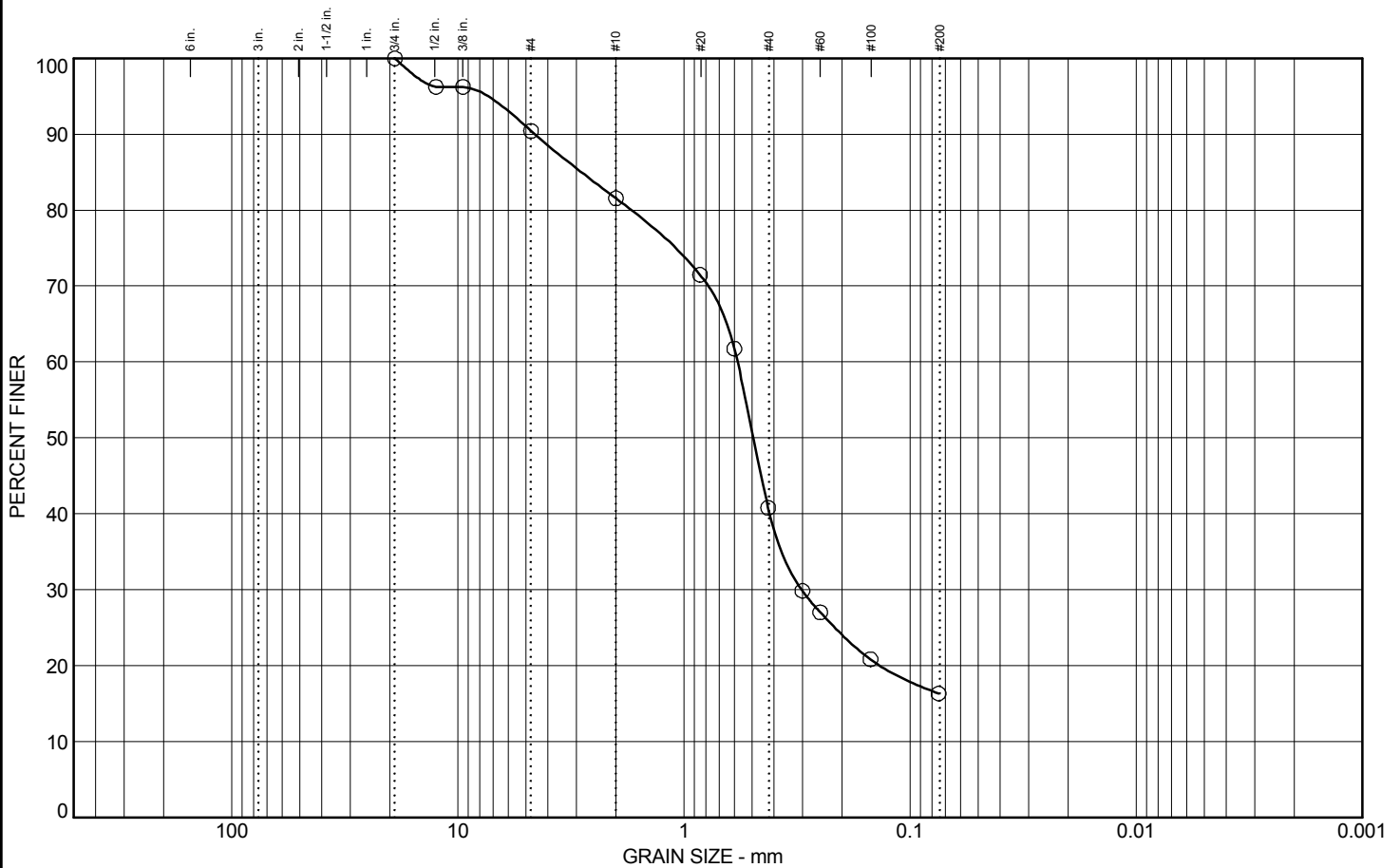
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	18.4	41.2	24.1	16.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	96.2		
9.5	96.2		
4.75	90.4		
2	81.6		
0.85	71.5		
0.6	61.7		
0.425	40.8		
0.3	29.8		
0.25	27.0		
0.15	20.8		
0.075	16.3		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 4.7%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 2.799$

$D_{60} = 0.583$

$D_{50} = 0.495$

$D_{30} = 0.302$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 2

Source of Sample: B-071

Location: -

Date: 4/28/09

Depth / Elev: 3.5' / 774.91'



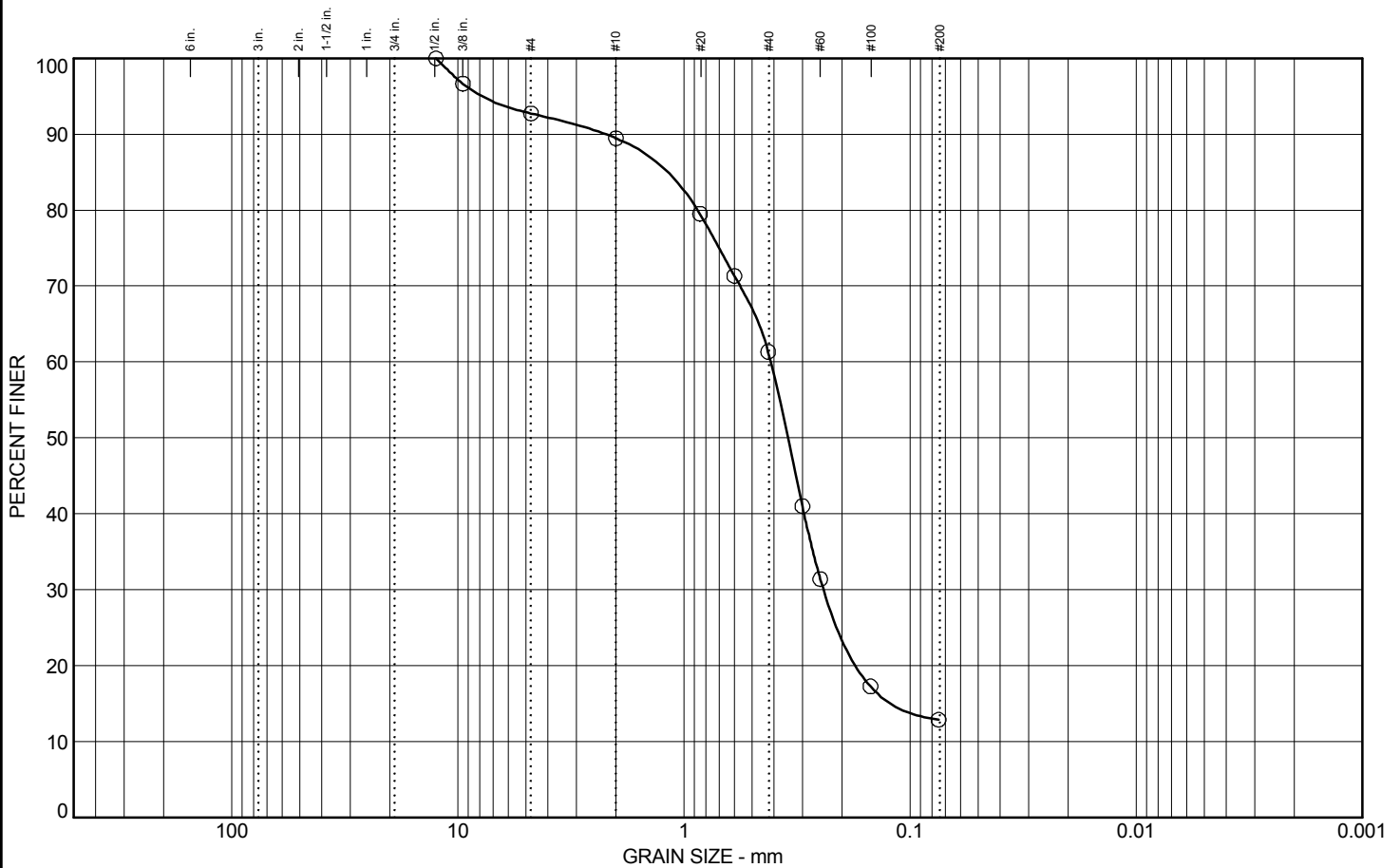
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.5	28.8	47.8	12.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	96.7		
4.75	92.7		
2	89.5		
0.85	79.5		
0.6	71.3		
0.425	61.3		
0.3	41.0		
0.25	31.4		
0.15	17.2		
0.075	12.8		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 6.7%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 1.362$

$D_{60} = 0.415$

$D_{50} = 0.35$

$D_{30} = 0.238$

$D_{15} = 0.105$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 3

Source of Sample: B-071

Location: -

Date: 4/28/09

Depth / Elev: 5' / 773.41'



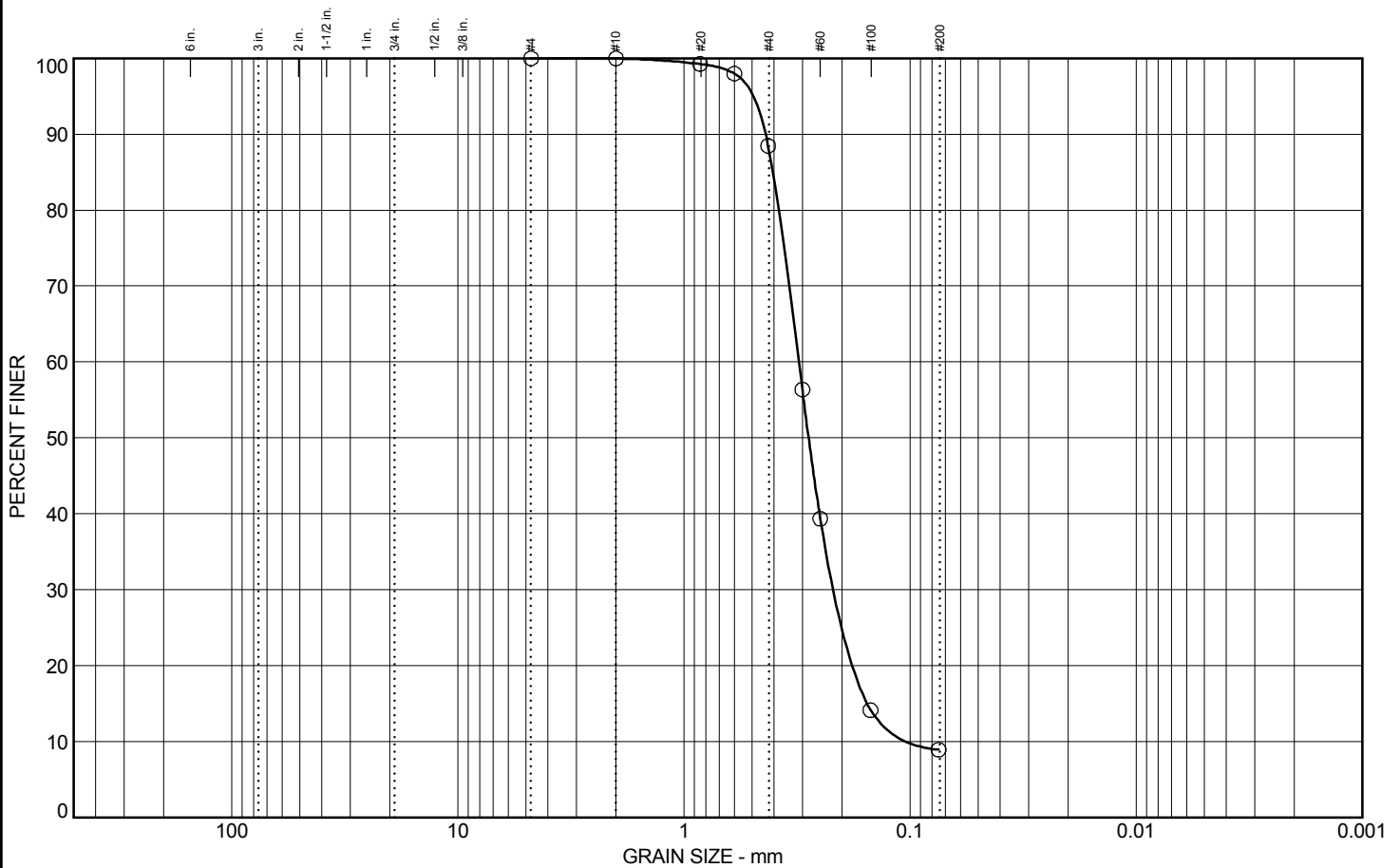
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.0	12.6	78.5	8.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	100.0		
0.85	99.3		
0.6	98.0		
0.425	88.5		
0.3	56.4		
0.25	39.3		
0.15	14.1		
0.075	8.9		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 6.1%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.409$

$D_{60} = 0.312$

$D_{50} = 0.28$

$D_{30} = 0.207$

$D_{15} = 0.153$

$D_{10} = 0.087$

$C_u = 3.59$

$C_c = 1.58$

Classification

ODOT = A-3

Remarks

Group Index = 0

Sample No.: 4

Source of Sample: B-071

Location: -

Date: 4/28/09

Depth / Elev: 6.5' / 771.91'



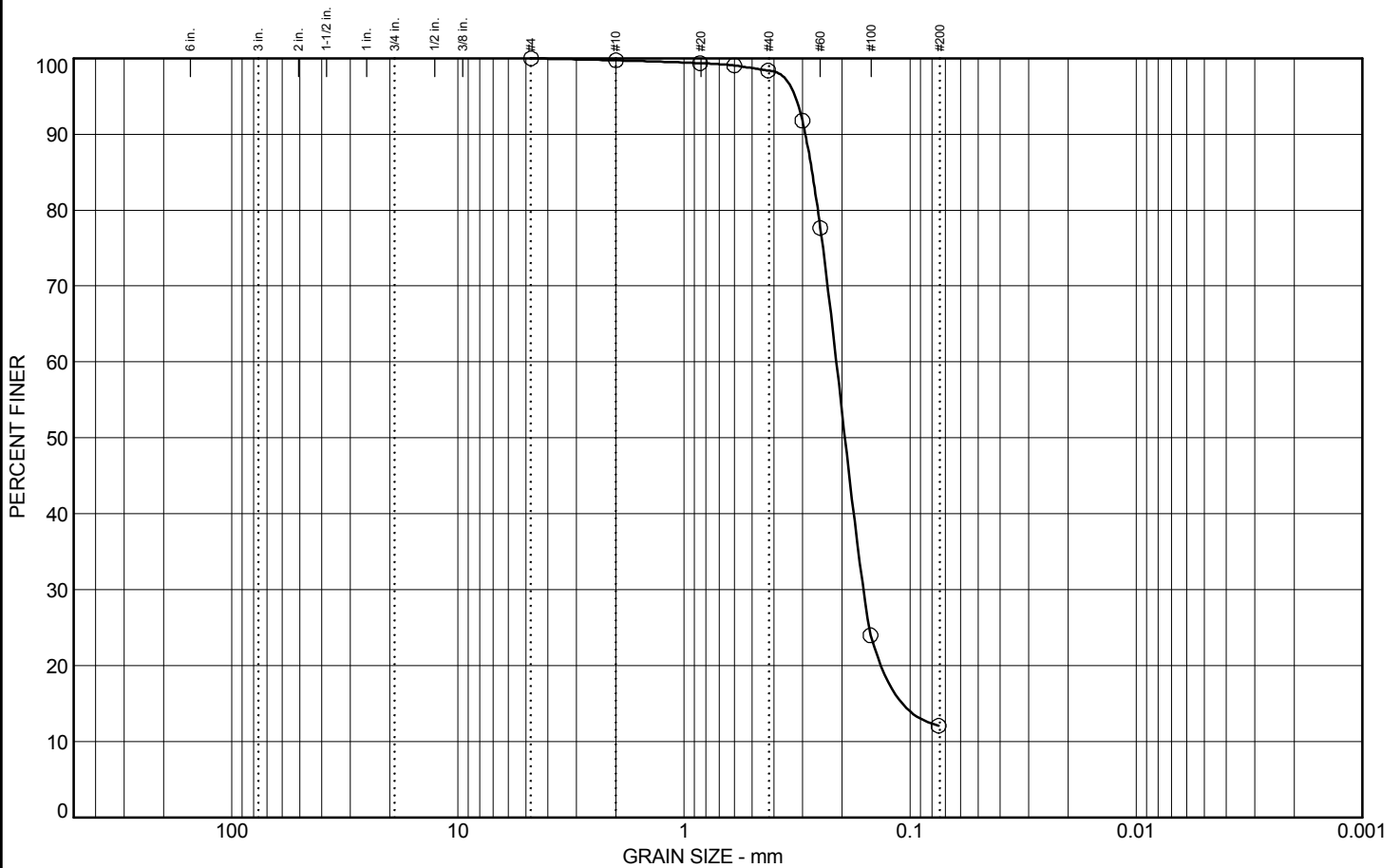
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.3	1.6	86.1	12.0	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	99.7		
0.85	99.4		
0.6	99.1		
0.425	98.4		
0.3	91.8		
0.25	77.6		
0.15	24.0		
0.075	12.0		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 7.4%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 0.275$

$D_{60} = 0.211$

$D_{50} = 0.192$

$D_{30} = 0.159$

$D_{15} = 0.089$

$D_{10} =$

$C_u = 3.17$

$C_c = 1.79$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 5

Source of Sample: B-071

Date: 4/28/09

Location: -

Depth / Elev: 8' / 770.41'



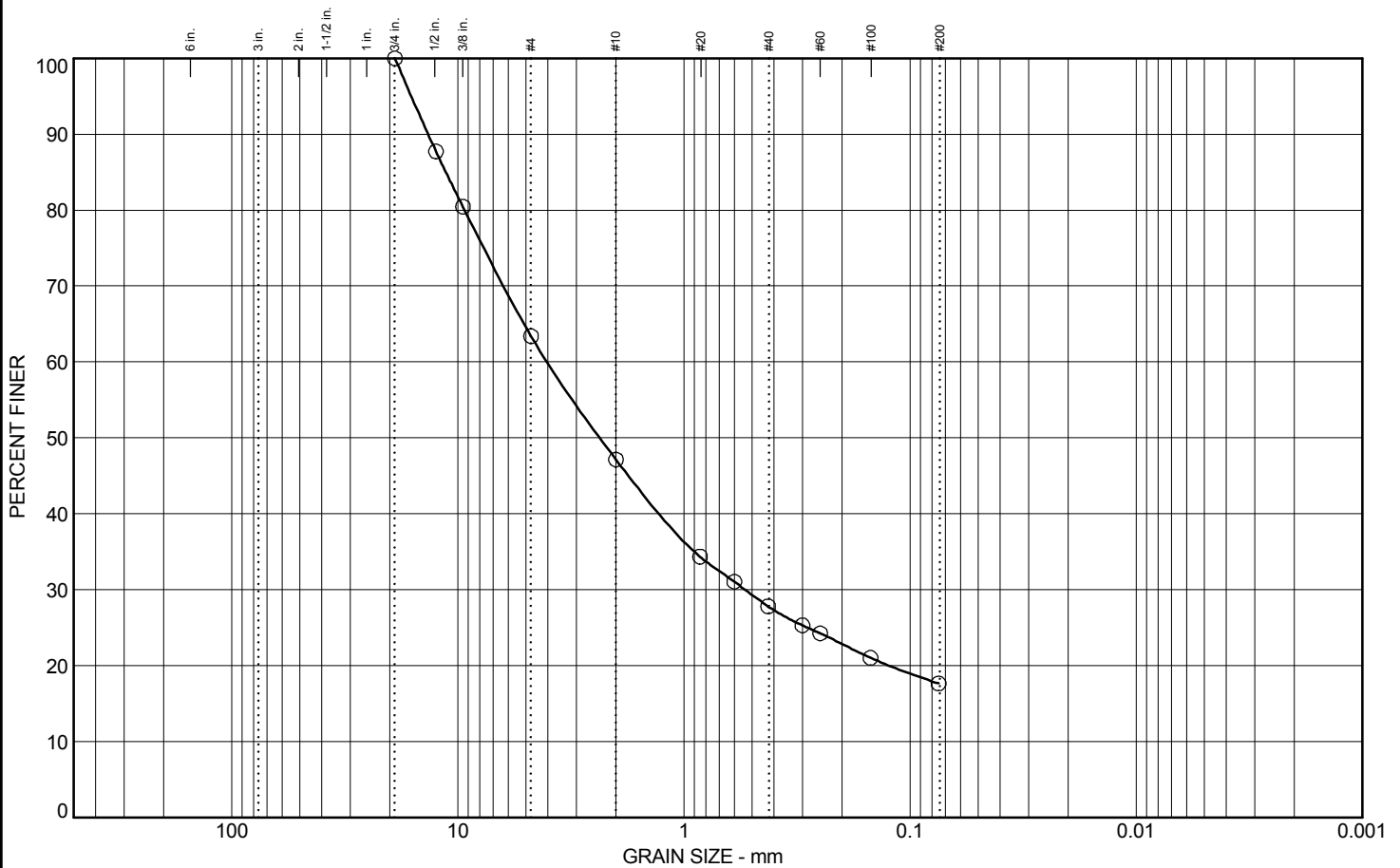
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	52.9	19.4	10.1	17.6	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	87.7		
9.5	80.5		
4.75	63.4		
2	47.1		
0.85	34.3		
0.6	31.0		
0.425	27.8		
0.3	25.3		
0.25	24.2		
0.15	21.0		
0.075	17.6		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 4.4%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 11.277$

$D_{60} = 3.966$

$D_{50} = 2.329$

$D_{30} = 0.537$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 1

Source of Sample: B-073

Location: -

Date: 4/14/09

Depth / Elev: 1.5' / 764.03'



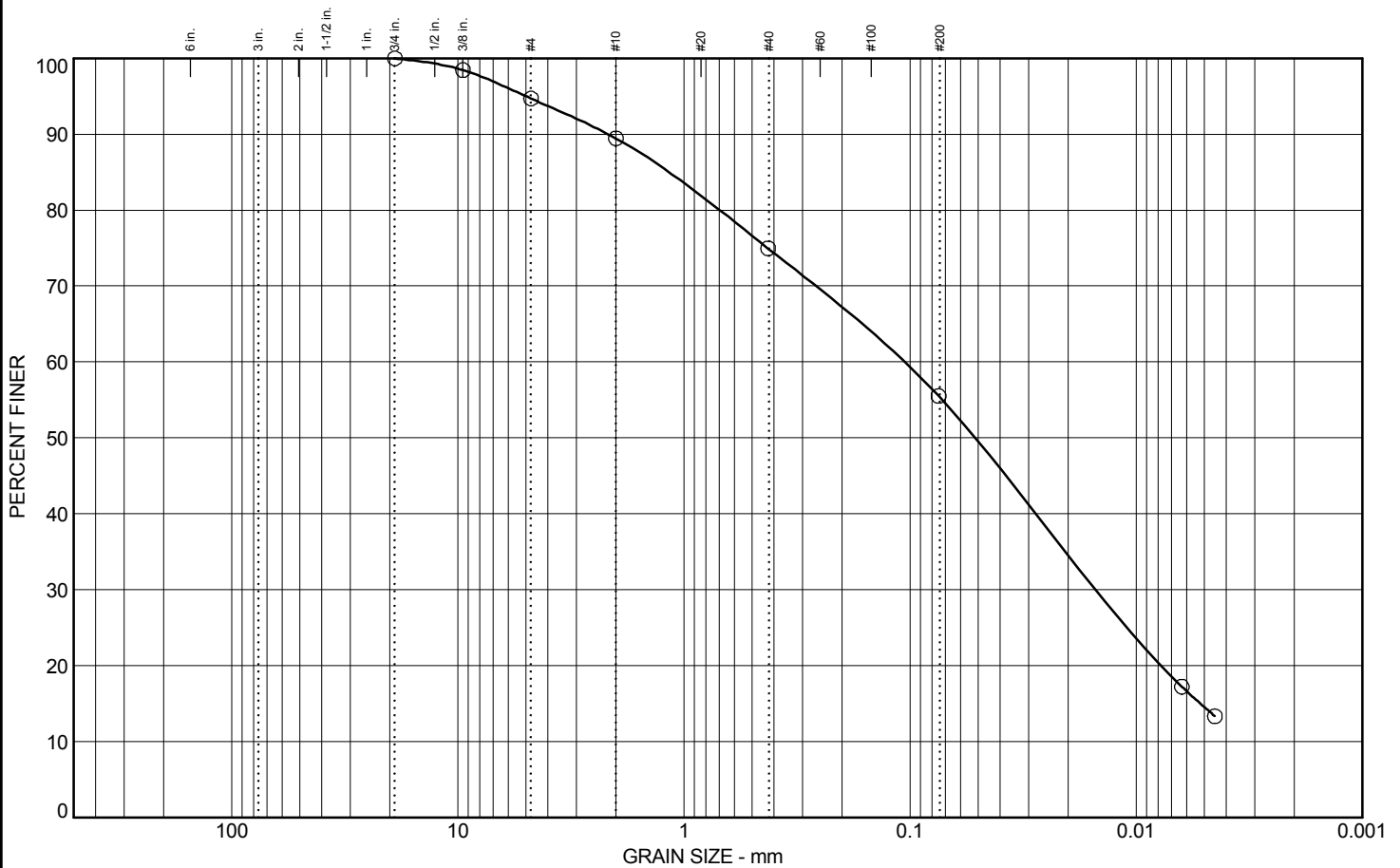
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.5	14.6	19.3	41.0	14.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.4		
4.75	94.7		
2	89.5		
0.425	75.0		
0.075	55.5		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.1%

Atterberg Limits

LL = 24

PL = 16

PI = 8

Coefficients

$D_{85} = 1.242$

$D_{60} = 0.112$

$D_{50} = 0.053$

$D_{30} = 0.014$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 2

Source of Sample: B-073

Date: 4/14/09

Location: -

Depth / Elev: 3' / 762.53'



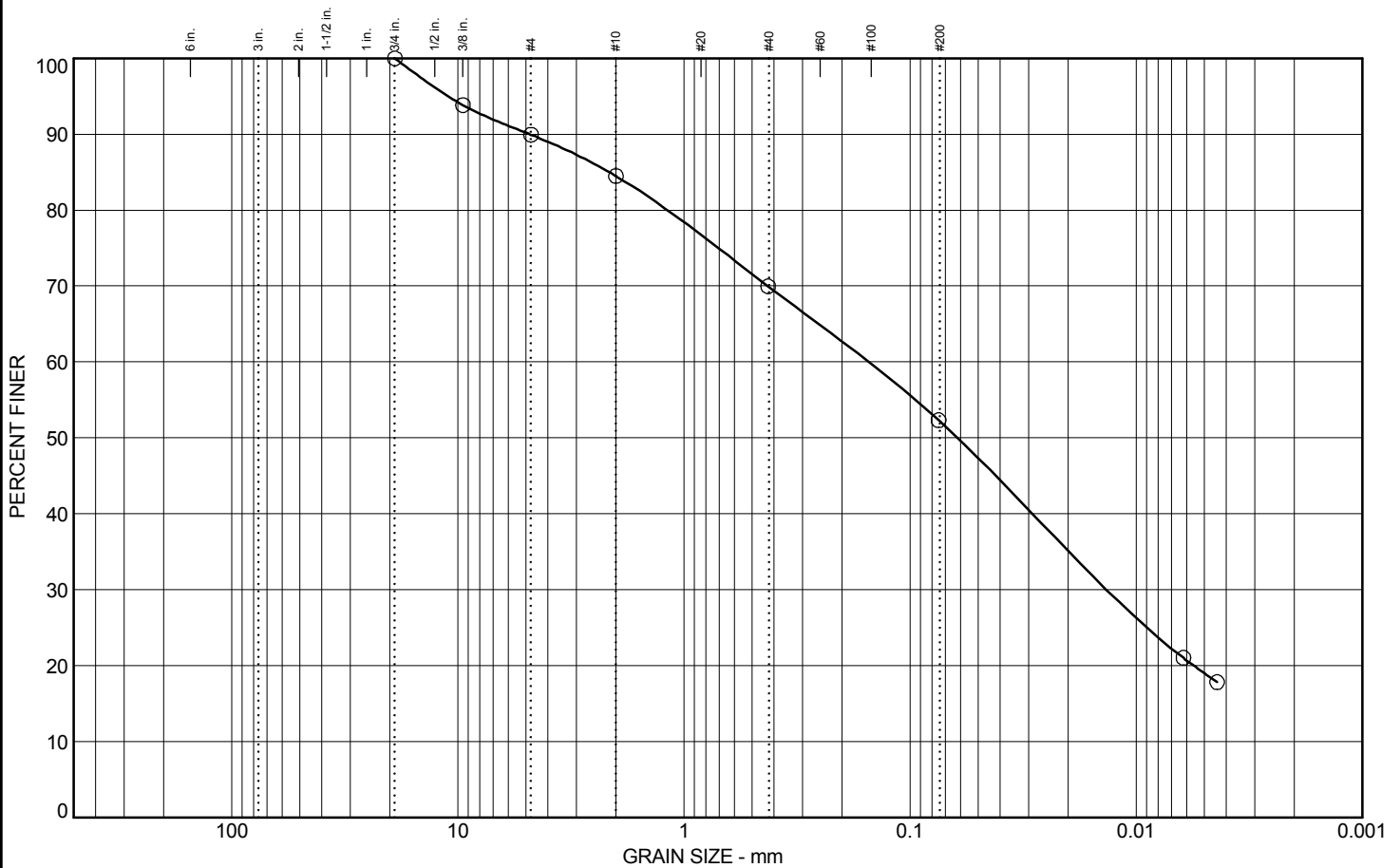
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	15.5	14.6	17.5	33.3	19.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	93.8		
4.75	89.9		
2	84.5		
0.425	70.0		
0.075	52.3		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.7%

Atterberg Limits

LL = 24

PL = 17

PI = 7

Coefficients

$D_{85} = 2.171$

$D_{60} = 0.16$

$D_{50} = 0.062$

$D_{30} = 0.013$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 3

Source of Sample: B-073

Location: -

Date: 4/14/09

Depth / Elev: 4.5' / 761.03'



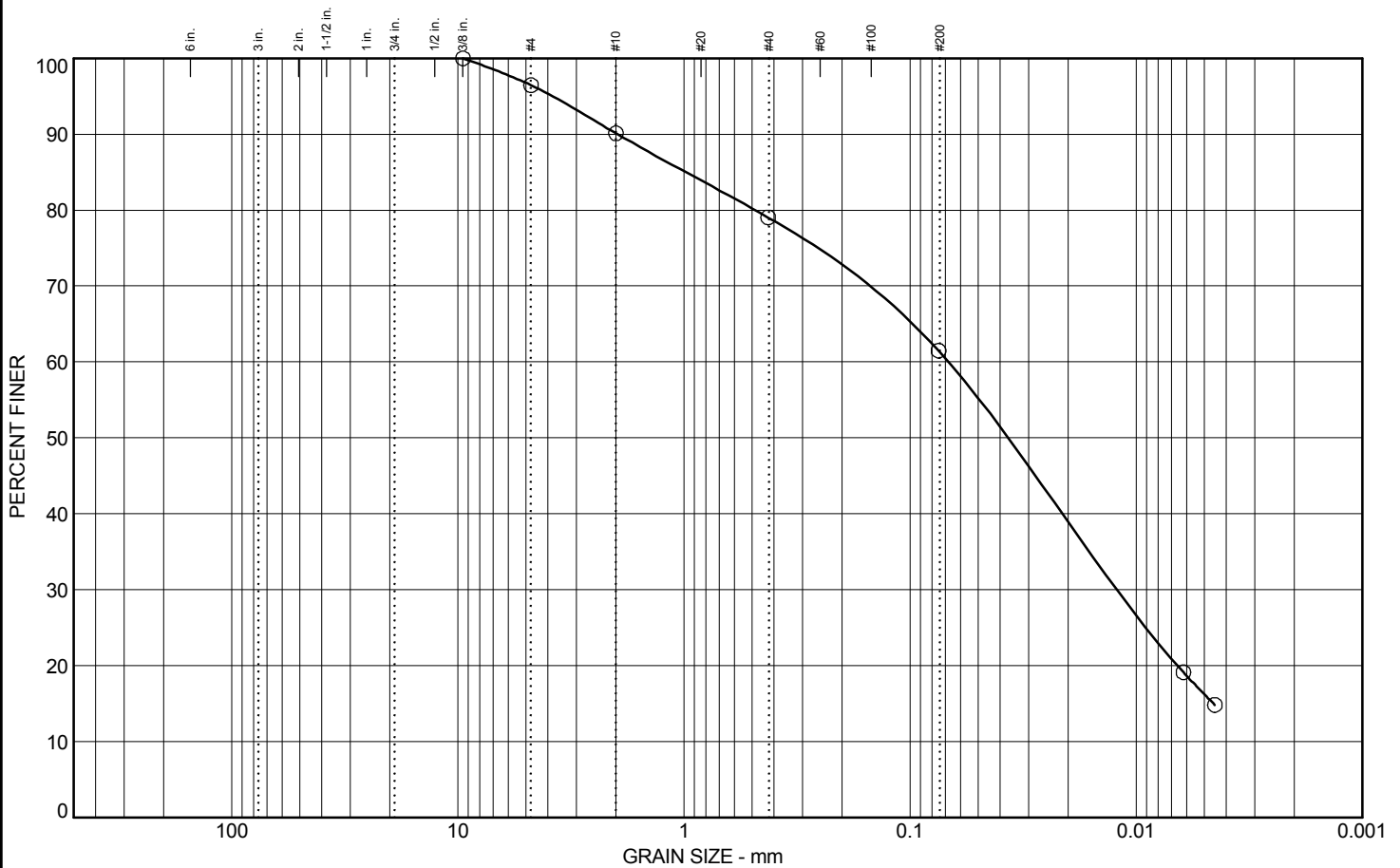
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	9.9	11.2	17.4	45.3	16.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	96.5		
2	90.1		
0.425	79.0		
0.075	61.5		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.5%

Atterberg Limits

LL= 22

PL= 16

PI= 6

Coefficients

$D_{85} = 0.978$

$D_{60} = 0.069$

$D_{50} = 0.038$

$D_{30} = 0.012$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 4

Source of Sample: B-073

Location: -

Date: 4/14/09

Depth / Elev: 6' / 759.53'



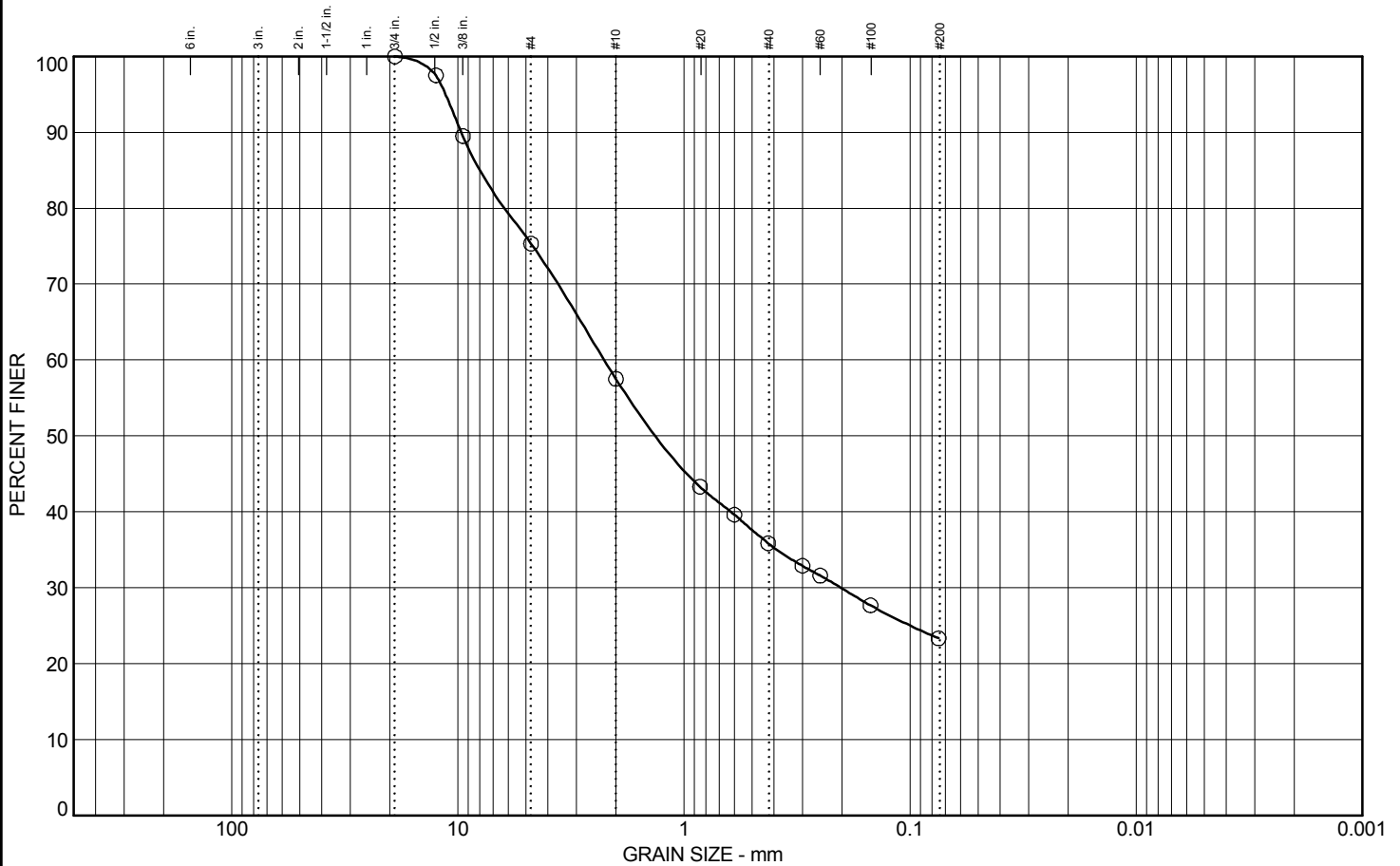
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	42.5	21.8	12.4	23.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	97.5		
9.5	89.5		
4.75	75.3		
2	57.5		
0.85	43.3		
0.6	39.6		
0.425	35.8		
0.3	32.9		
0.25	31.6		
0.15	27.7		
0.075	23.3		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 6.2%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 7.622$
 $D_{30} = 0.204$
 $C_u =$
 $D_{60} = 2.258$
 $D_{15} =$
 $C_c =$
 $D_{50} = 1.273$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 1

Location: -

Source of Sample: B-074

Date: 4/13/09

Depth / Elev: 1.5' / 778.31'



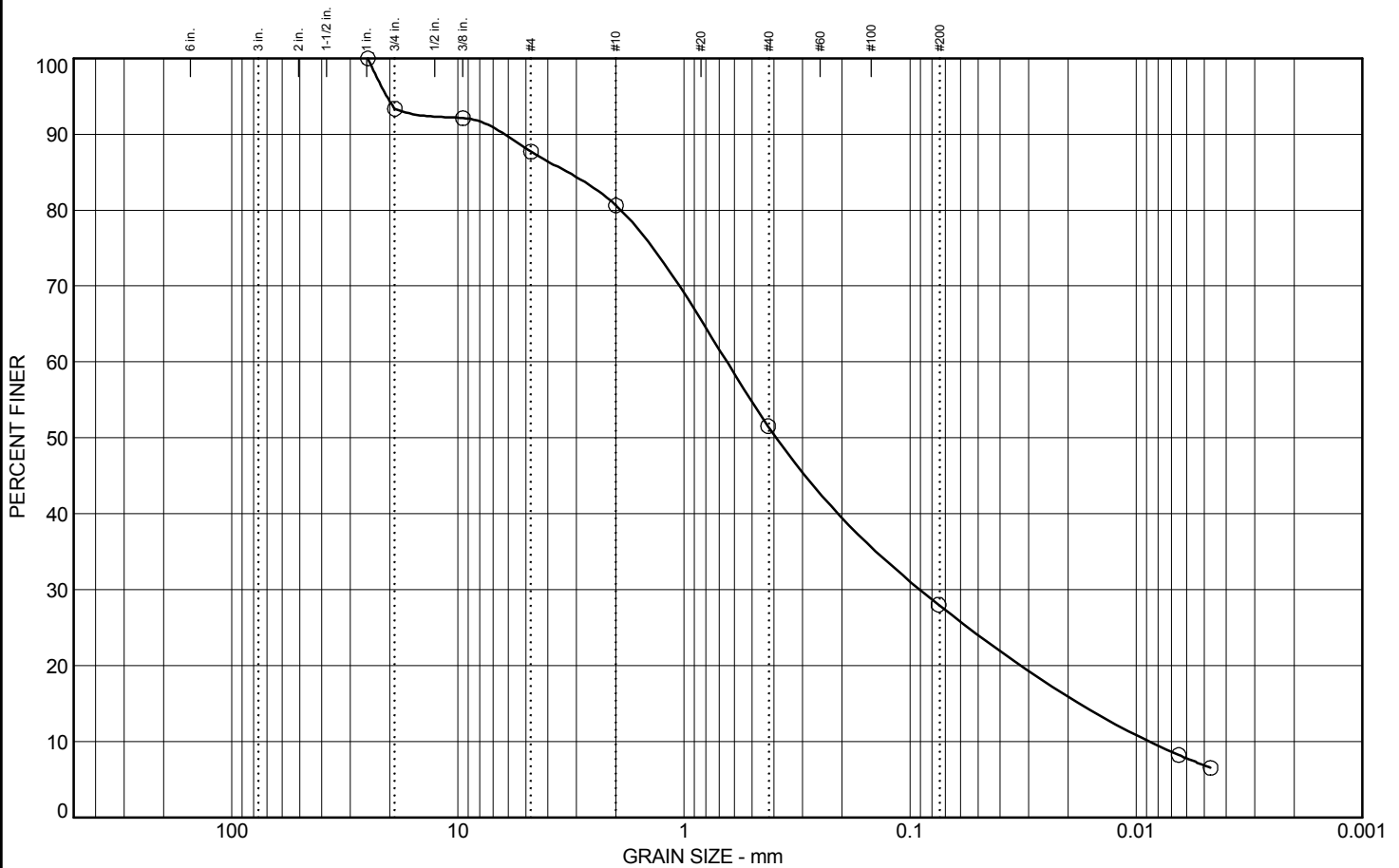
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	6.6	12.7	29.2	23.4	21.2	6.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	93.4		
9.5	92.1		
4.75	87.7		
2	80.6		
0.425	51.5		
0.075	28.0		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 6.7%

Atterberg Limits

LL= 19

PL= 15

PI= 4

Coefficients

$D_{85} = 3.416$

$D_{60} = 0.667$

$D_{50} = 0.379$

$D_{30} = 0.087$

$D_{15} = 0.015$

$D_{10} = 0.008$

$C_u = 82.18$

$C_c = 1.39$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 2

Location: -

Source of Sample: B-074

Date: 4/13/09

Depth / Elev: 3' / 776.81'



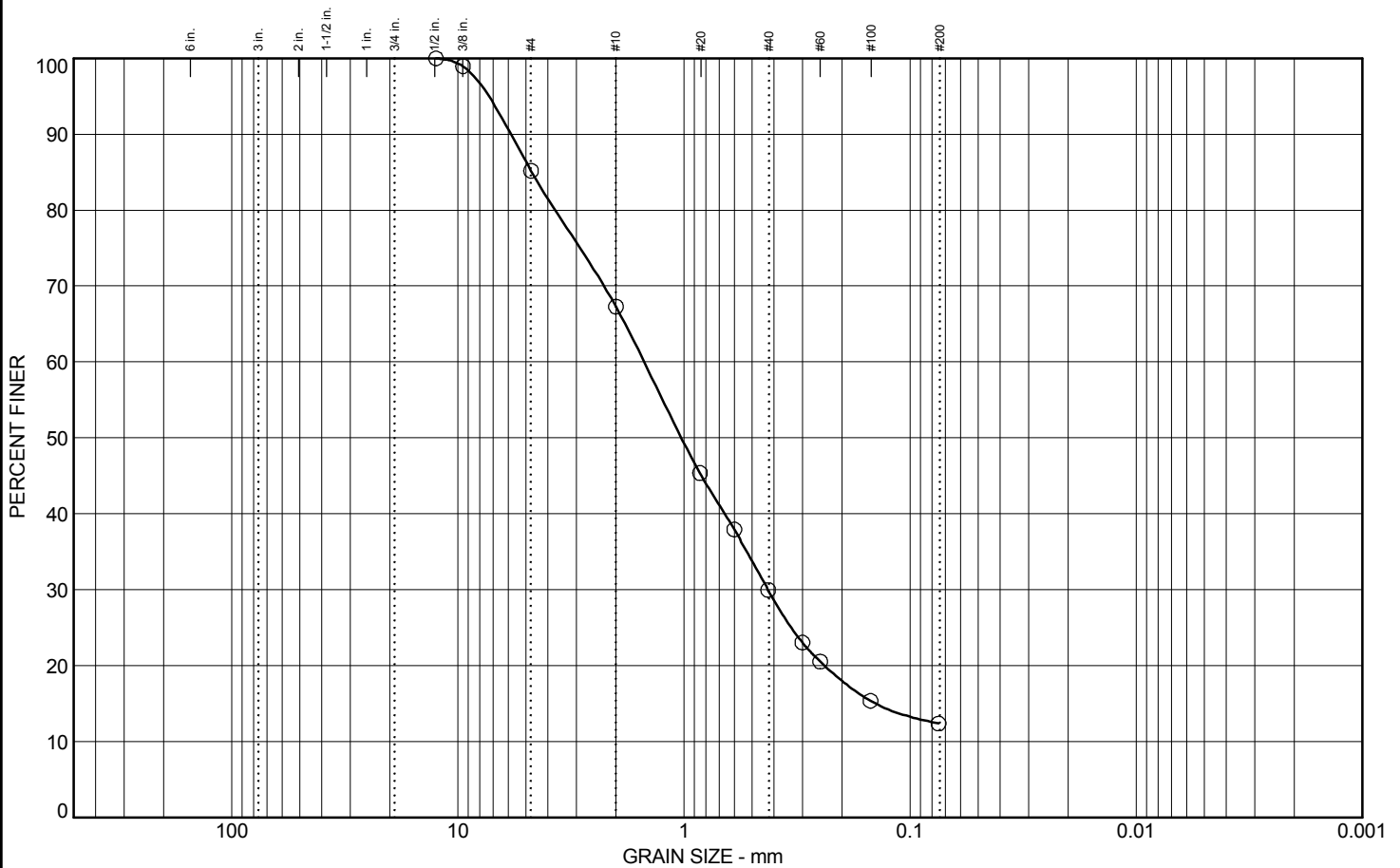
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	32.7	37.6	17.4	12.3	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	99.0		
4.75	85.2		
2	67.3		
0.85	45.3		
0.6	37.9		
0.425	30.0		
0.3	23.0		
0.25	20.5		
0.15	15.3		
0.075	12.3		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt

General Characteristics

Moisture Content = 4.7%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 4.708$

$D_{60} = 1.506$

$D_{50} = 1.019$

$D_{30} = 0.426$

$D_{15} = 0.139$

$D_{10} =$

$C_u = 34.51$

$C_c = 2.76$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 3

Source of Sample: B-074

Location: -

Date: 4/13/09

Depth / Elev: 4.5' / 775.31'



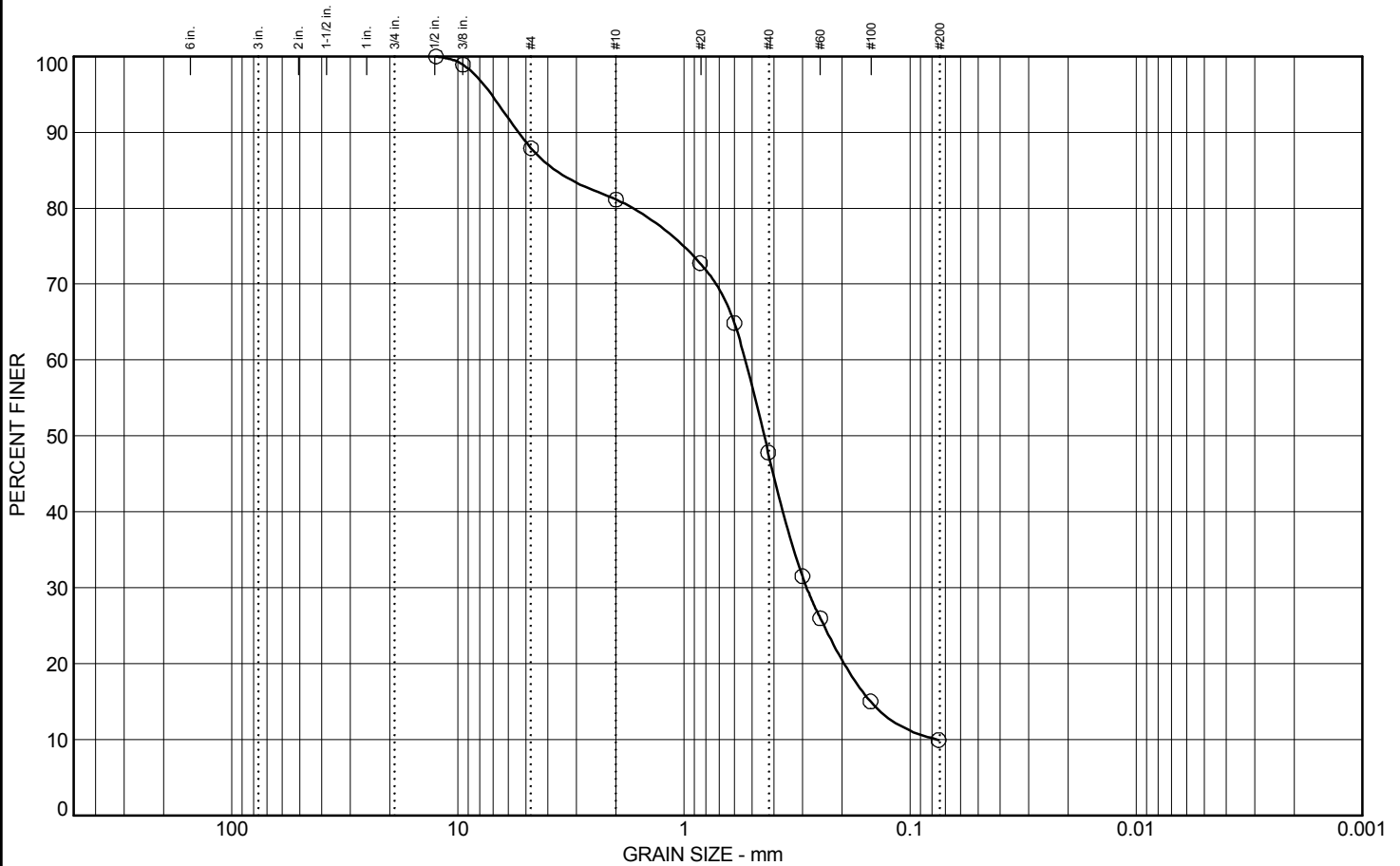
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	18.9	33.9	37.3	9.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	98.9		
4.75	87.9		
2	81.1		
0.85	72.8		
0.6	64.9		
0.425	47.8		
0.3	31.5		
0.25	26.0		
0.15	15.0		
0.075	9.9		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 13.9%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 3.279$

$D_{60} = 0.544$

$D_{50} = 0.444$

$D_{30} = 0.286$

$D_{15} = 0.15$

$D_{10} = 0.076$

$C_u = 7.16$

$C_c = 1.98$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 4

Location: -

Source of Sample: B-074

Date: 4/13/09

Depth / Elev: 6' / 773.81'



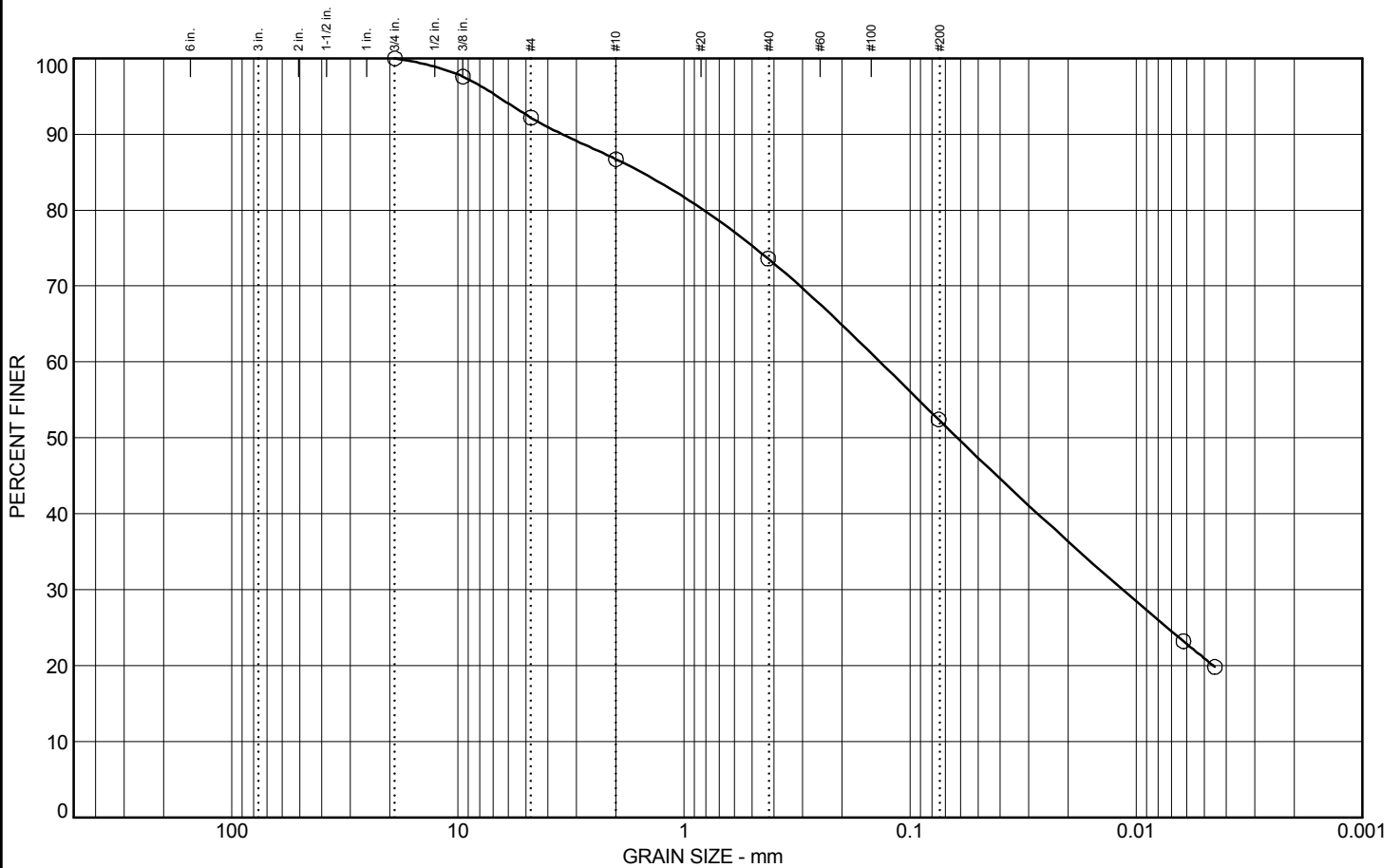
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	13.3	13.2	21.1	31.5	20.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	97.6		
4.75	92.2		
2	86.7		
0.425	73.6		
0.075	52.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 8.0%

Atterberg Limits

LL = 22

PL = 13

PI = 9

Coefficients

$D_{85} = 1.635$

$D_{60} = 0.14$

$D_{50} = 0.061$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 1

Source of Sample: B-075

Location: -

Date: 4/17/09

Depth / Elev: 1.5' / 783.23'



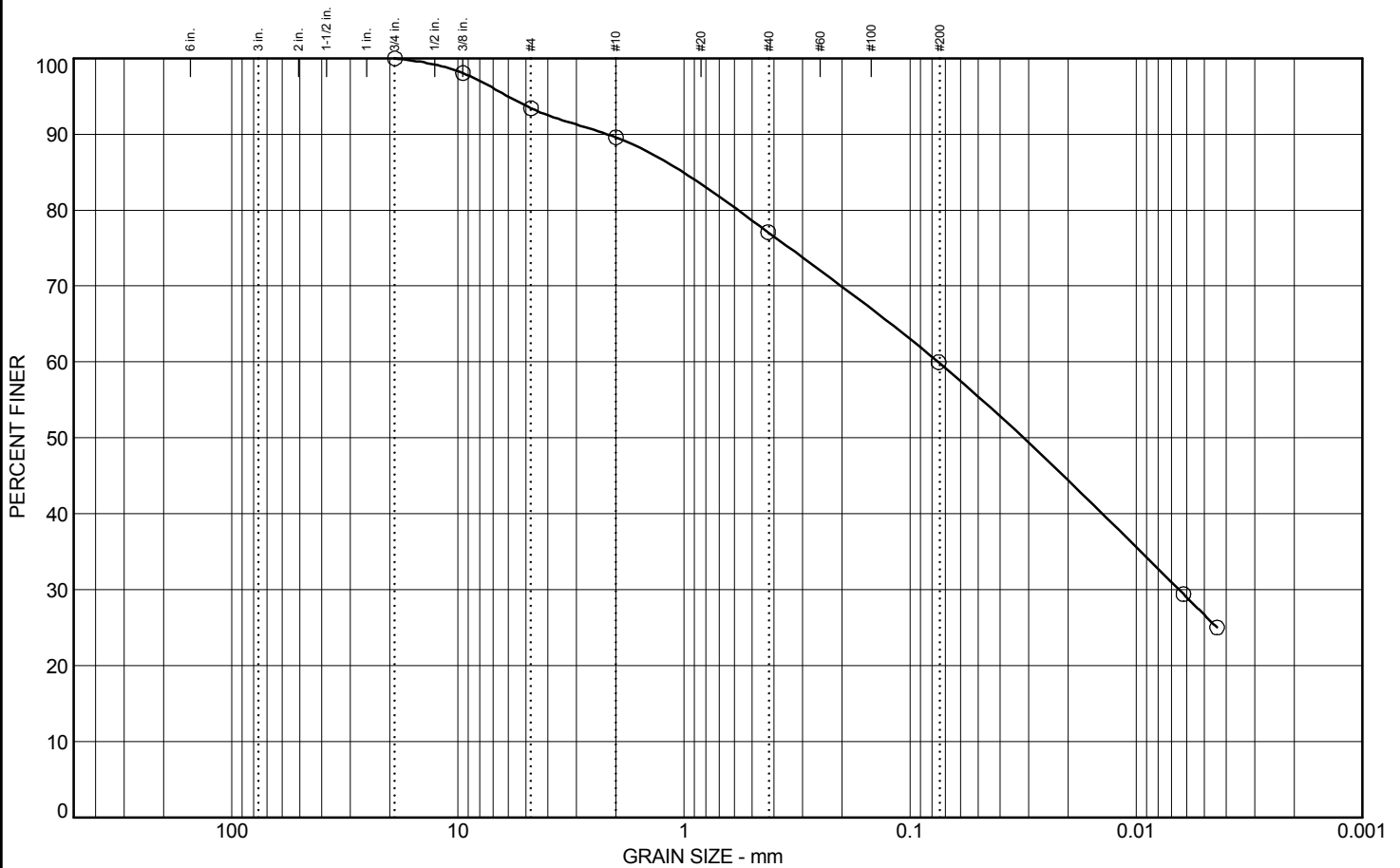
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	10.4	12.6	17.0	33.3	26.6

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.1		
4.75	93.4		
2	89.6		
0.425	77.1		
0.075	60.0		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 12.9%

Atterberg Limits

LL = 27

PL = 15

PI = 12

Coefficients

$D_{85} = 1.132$

$D_{60} = 0.075$

$D_{50} = 0.033$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 6

Sample No.: 2

Location: -

Source of Sample: B-075

Date: 4/17/09

Depth / Elev: 3' / 781.73'



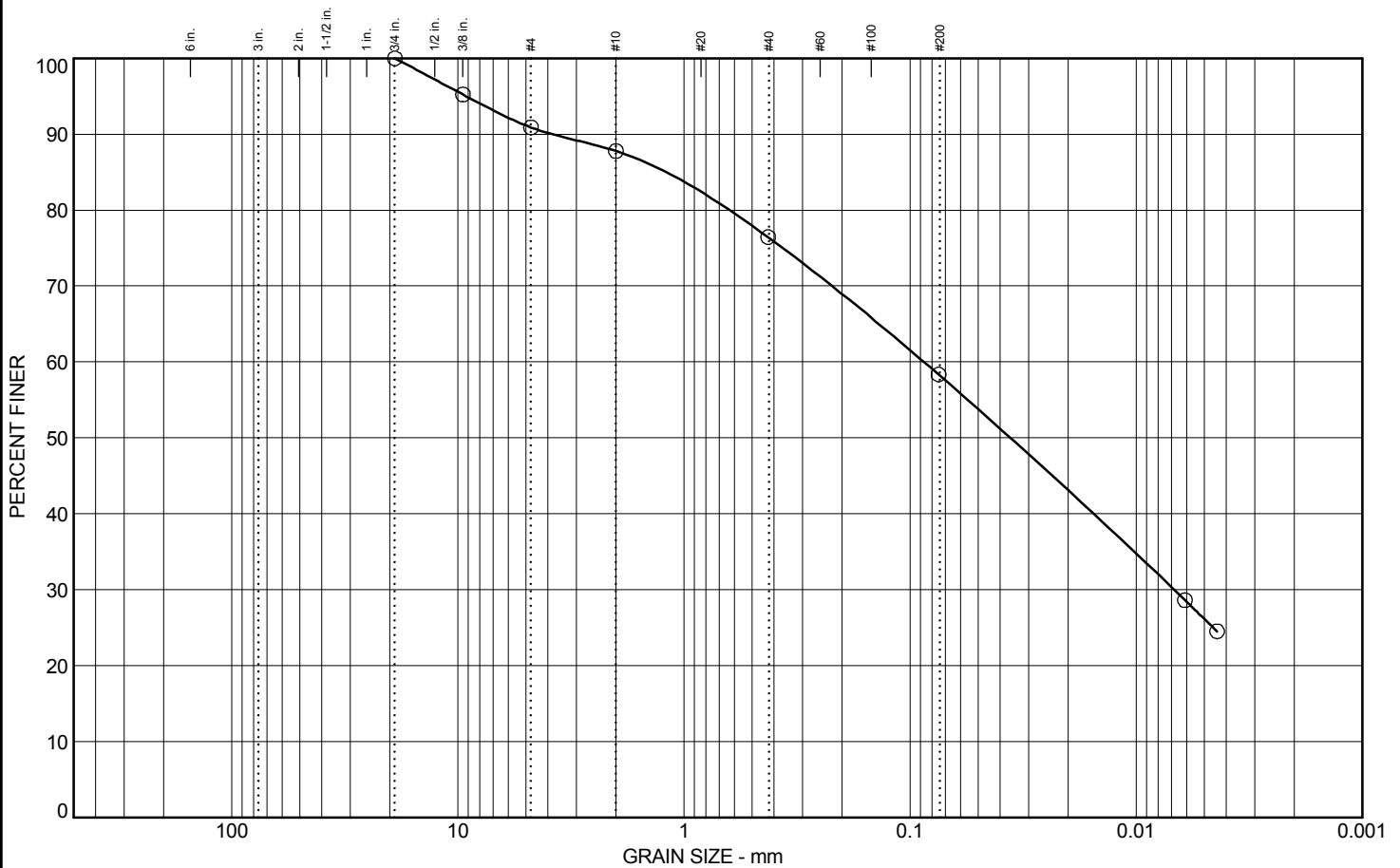
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.2	11.5	18.0	32.2	26.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.2		
4.75	90.9		
2	87.8		
0.425	76.4		
0.075	58.3		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 12.9%

Atterberg Limits

LL= 27

PL= 18

PI= 9

Coefficients

$D_{85} = 1.368$

$D_{60} = 0.088$

$D_{50} = 0.037$

$D_{30} = 0.007$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 3

Source of Sample: B-075

Location: -

Date: 4/17/09

Depth / Elev: 4.5' / 780.23'



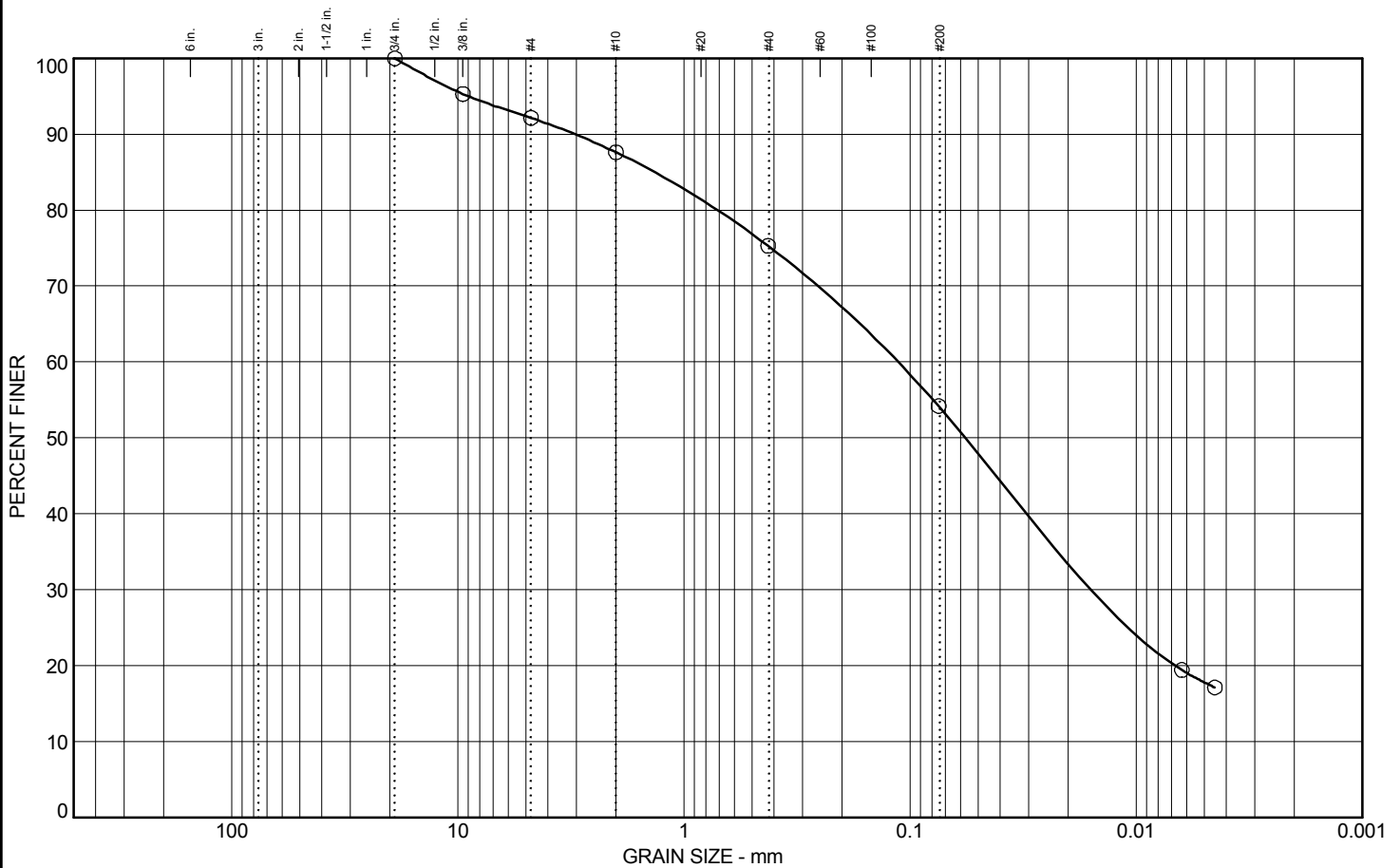
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.4	12.5	21.0	36.4	17.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.3		
4.75	92.2		
2	87.6		
0.425	75.3		
0.075	54.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.5%

Atterberg Limits

LL= 20

PL= 14

PI= 6

Coefficients

$D_{85} = 1.439$

$D_{30} = 0.013$

$C_u =$

$D_{60} = 0.121$

$D_{15} =$

$C_c =$

$D_{50} = 0.056$

$D_{10} =$

Classification

ODOT = A-4a

Remarks

Group Index = 4

Sample No.: 4

Location: -

Source of Sample: B-075

Date: 4/17/09

Depth / Elev: 6' / 778.73'



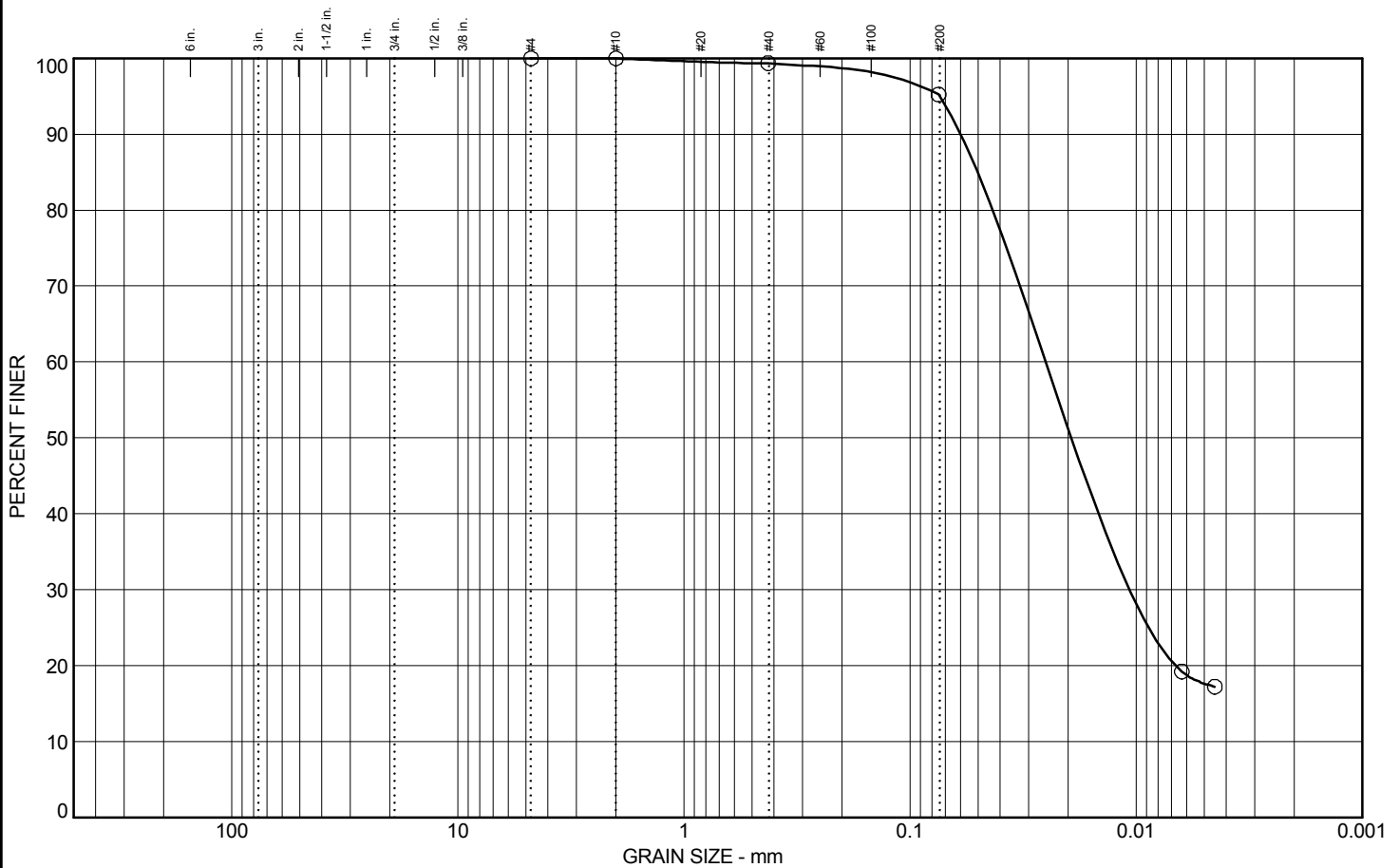
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.0	0.6	4.1	77.4	17.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	100.0		
0.425	99.4		
0.075	95.2		

* (no specification provided)

Soil Description

low plasticity silt

General Characteristics

Moisture Content = 17.7%

Atterberg Limits

LL= 21

PL= 18

PI= 3

Coefficients

$D_{85} = 0.054$

$D_{60} = 0.024$

$D_{50} = 0.017$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4b

Remarks

Group Index = 9

Sample No.: 8

Source of Sample: B-075

Location: -

Date: 4/17/09

Depth / Elev: 13.5' / 771.23'



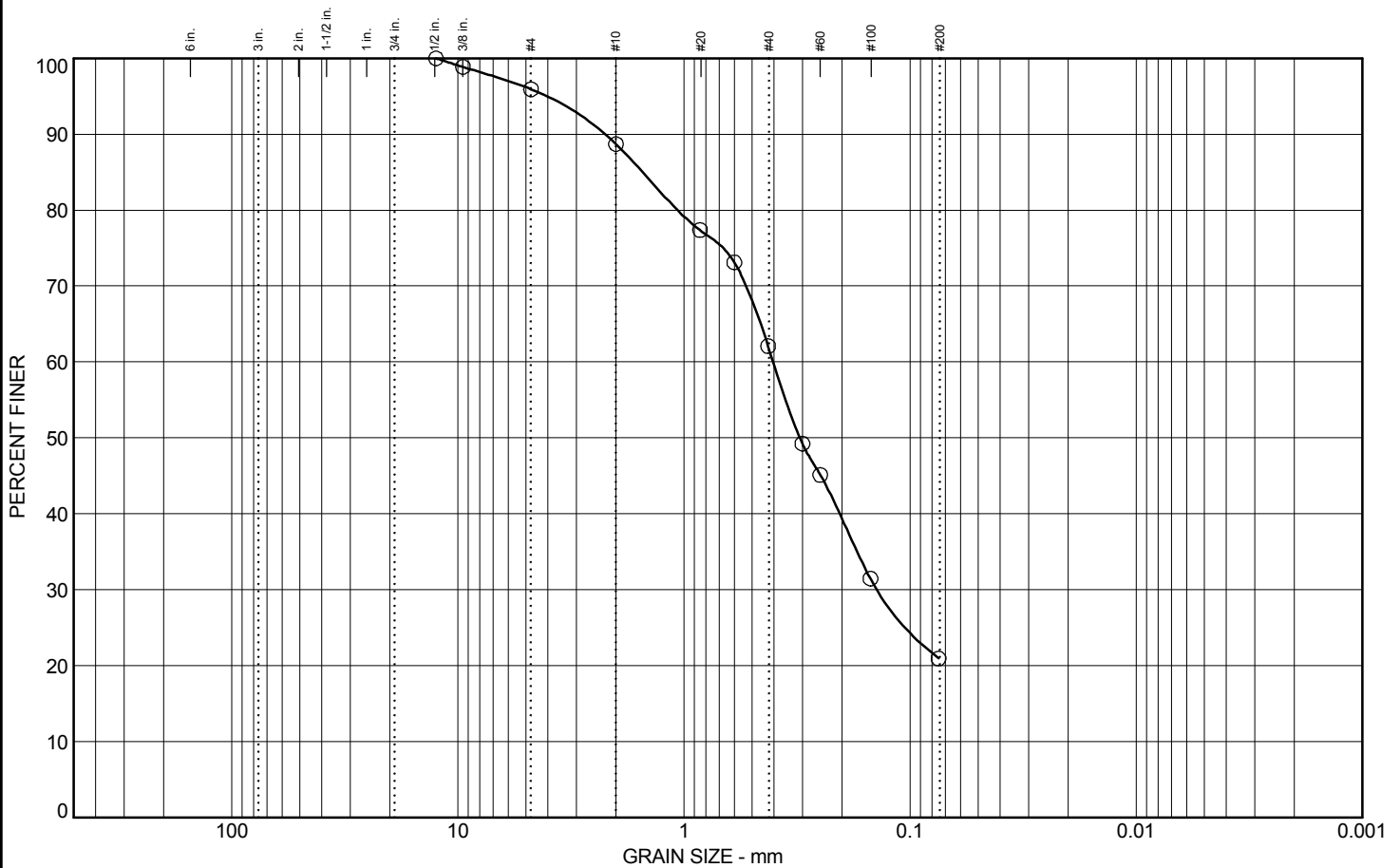
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	11.3	27.1	40.7	20.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	98.9		
4.75	95.9		
2	88.7		
0.85	77.4		
0.6	73.1		
0.425	62.1		
0.3	49.2		
0.25	45.1		
0.15	31.4		
0.075	20.9		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt

General Characteristics

Moisture Content = 16.0%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 1.512$
 $D_{30} = 0.136$
 $C_u =$
 $D_{60} = 0.402$
 $D_{15} =$
 $C_c =$
 $D_{50} = 0.306$
 $D_{10} =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 12

Location: -

Source of Sample: B-075

Date: 4/17/09

Depth / Elev: 23.5' / 761.23'



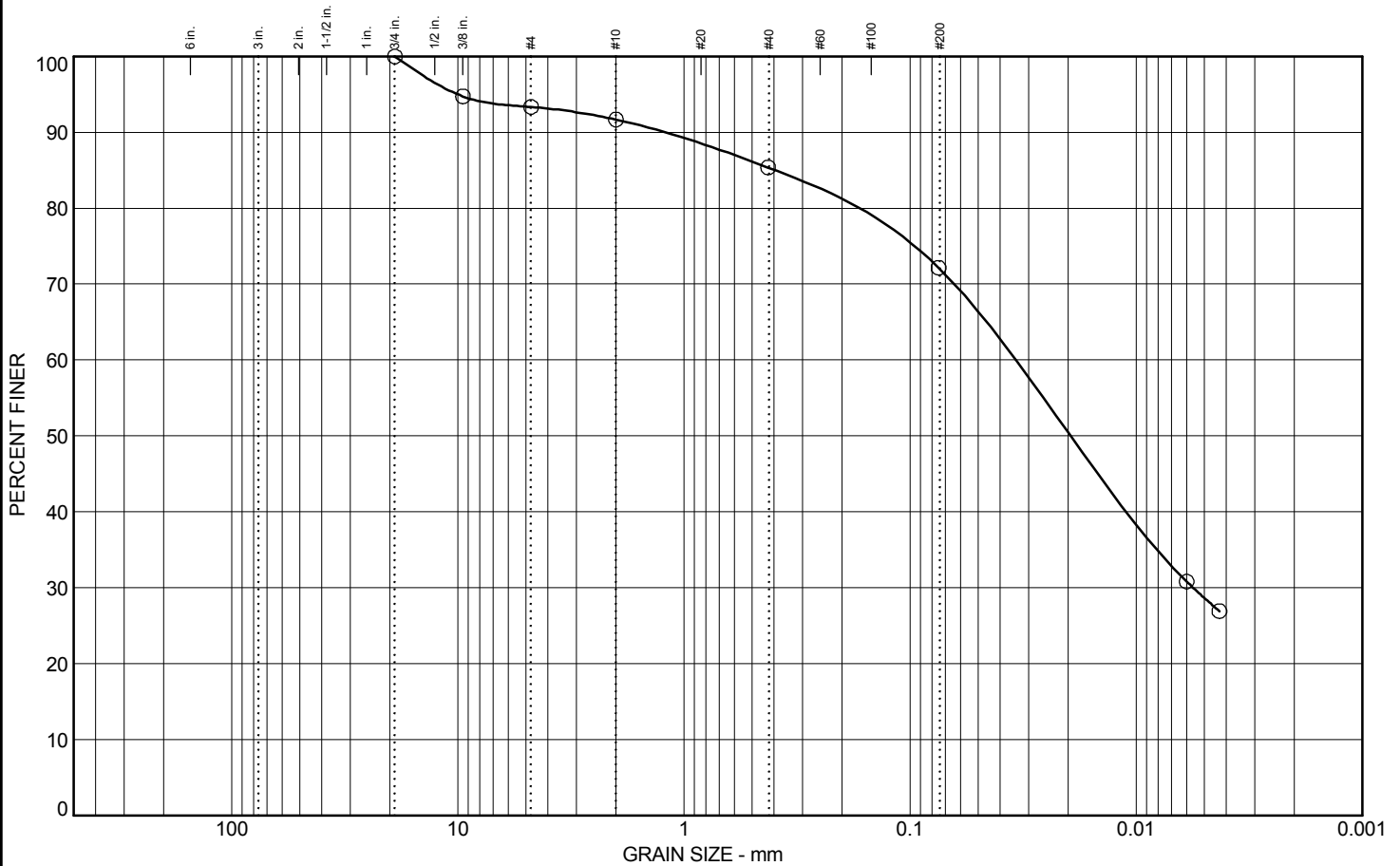
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.3	6.4	13.1	43.5	28.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	94.7		
4.75	93.3		
2	91.7		
0.425	85.4		
0.075	72.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 13.4%

Atterberg Limits

LL= 26

PL= 16

PI= 10

Coefficients

$D_{85} = 0.405$

$D_{60} = 0.036$

$D_{50} = 0.019$

$D_{30} = 0.006$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 8

Sample No.: 17

Source of Sample: B-075

Location: -

Date: 4/17/09

Depth / Elev: 36' / 748.73'



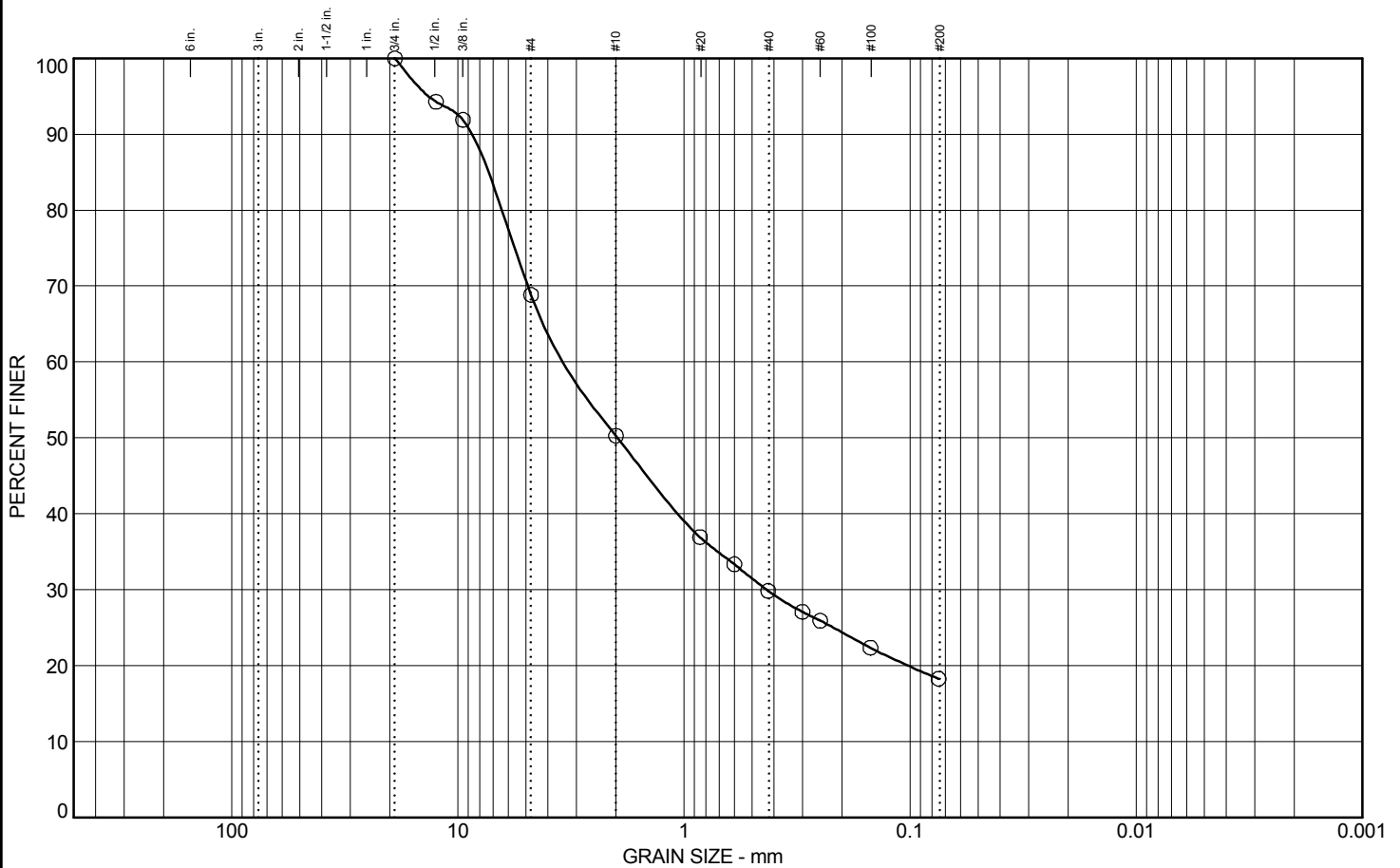
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	49.7	20.5	11.5	18.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	94.3		
9.5	91.9		
4.75	68.8		
2	50.3		
0.85	36.9		
0.6	33.3		
0.425	29.8		
0.3	27.1		
0.25	25.9		
0.15	22.3		
0.075	18.2		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 4.4%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 7.723$
 $D_{30} = 0.433$
 $C_u =$
 $D_{60} = 3.148$
 $D_{15} =$
 $C_c =$
 $D_{50} = 1.966$
 $D_{10} =$

Classification

ODOT = A-1-b

Remarks

Group Index = 0

Sample No.: 1
Location: -

Source of Sample: B-076

Date: 4/11/09
Depth / Elev: 1.5' / 762.02'



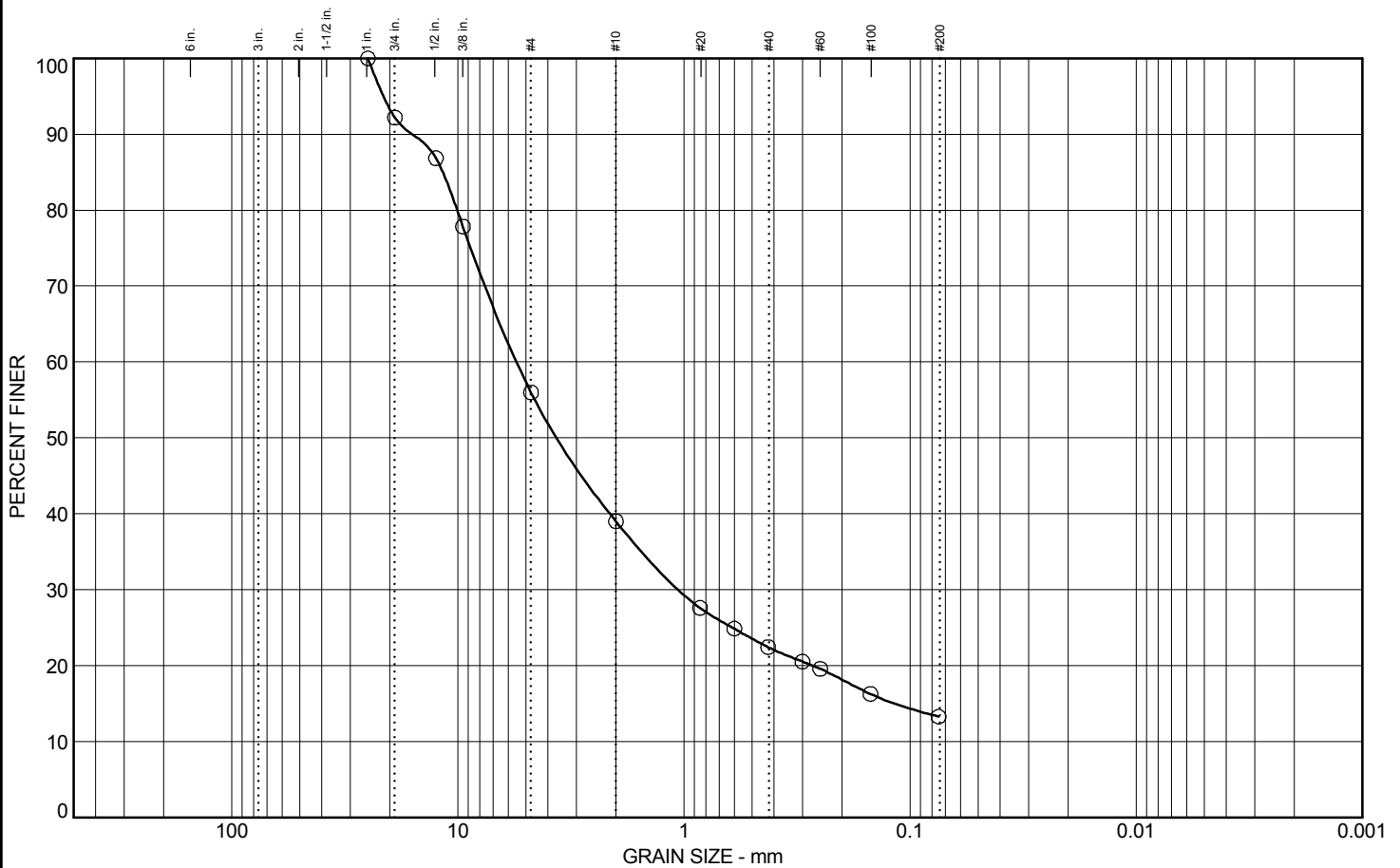
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	7.8	53.2	16.6	9.1	13.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	92.2		
12.5	86.8		
9.5	77.8		
4.75	56.0		
2	39.0		
0.85	27.6		
0.6	24.9		
0.425	22.4		
0.3	20.5		
0.25	19.5		
0.15	16.2		
0.075	13.2		

* (no specification provided)

Soil Description

fine gravel, non-plastic silt, medium to coarse sand

General Characteristics

Moisture Content = 6.4%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 11.82$
 $D_{30} = 1.019$
 $C_u =$
 $D_{60} = 5.395$
 $D_{15} = 0.112$
 $C_c =$
 $D_{50} = 3.503$
 $D_{10} =$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 2

Location: -

Source of Sample: B-076

Date: 4/11/09

Depth / Elev: 3' / 760.52'



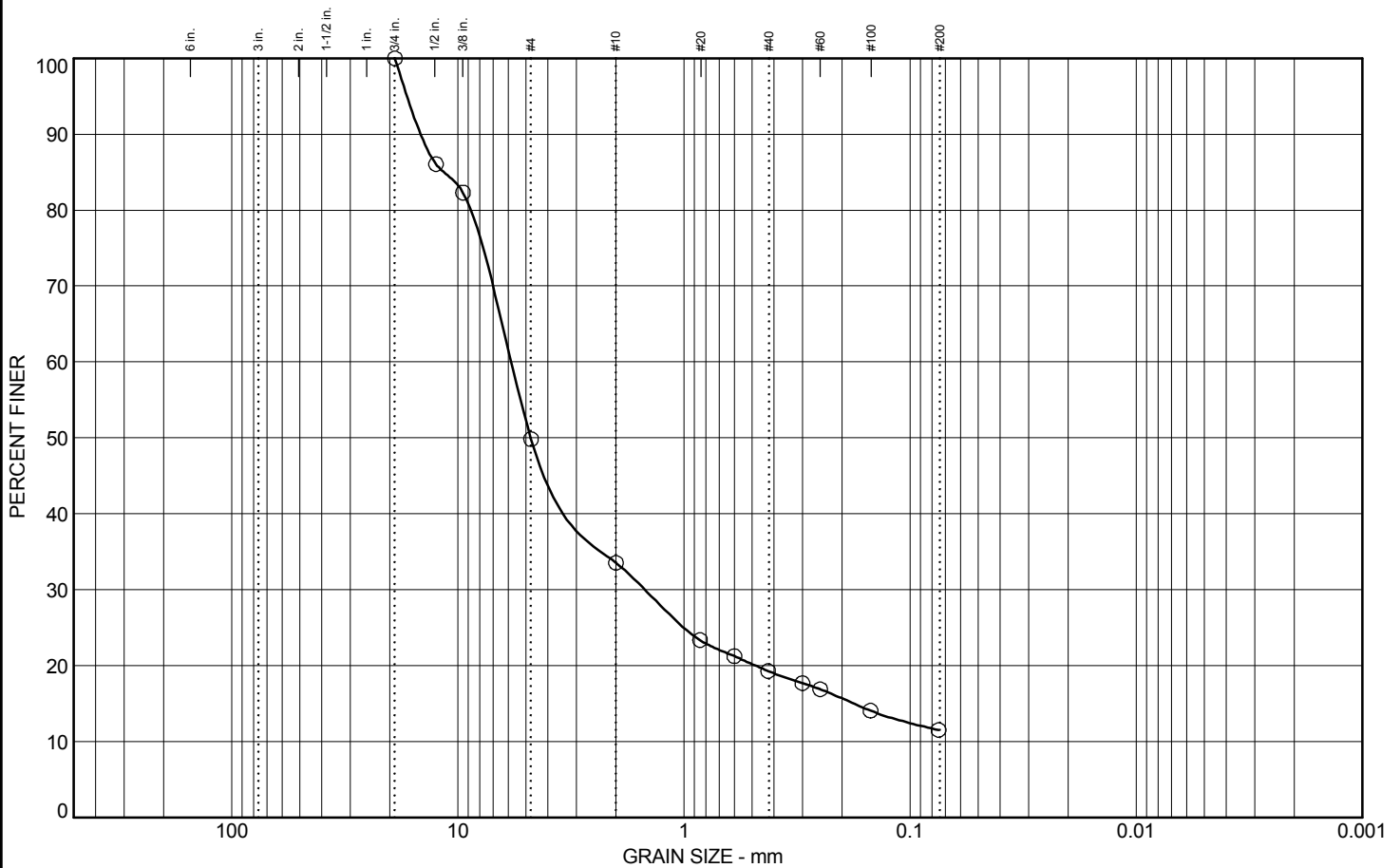
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	66.5	14.3	7.7	11.5	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	86.1		
9.5	82.3		
4.75	49.8		
2	33.5		
0.85	23.3		
0.6	21.2		
0.425	19.3		
0.3	17.7		
0.25	16.9		
0.15	14.0		
0.075	11.5		

* (no specification provided)

Soil Description

fine gravel, non-plastic silt, medium to coarse sand

General Characteristics

Moisture Content = 11.5%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 11.558$
 $D_{30} = 1.488$
 $C_u = 118.44$
 $D_{60} = 5.901$
 $D_{15} = 0.178$
 $C_c = 7.53$
 $D_{50} = 4.767$
 $D_{10} =$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 3

Location: -

Source of Sample: B-076

Date: 4/11/09

Depth / Elev: 4.5' / 759.02'



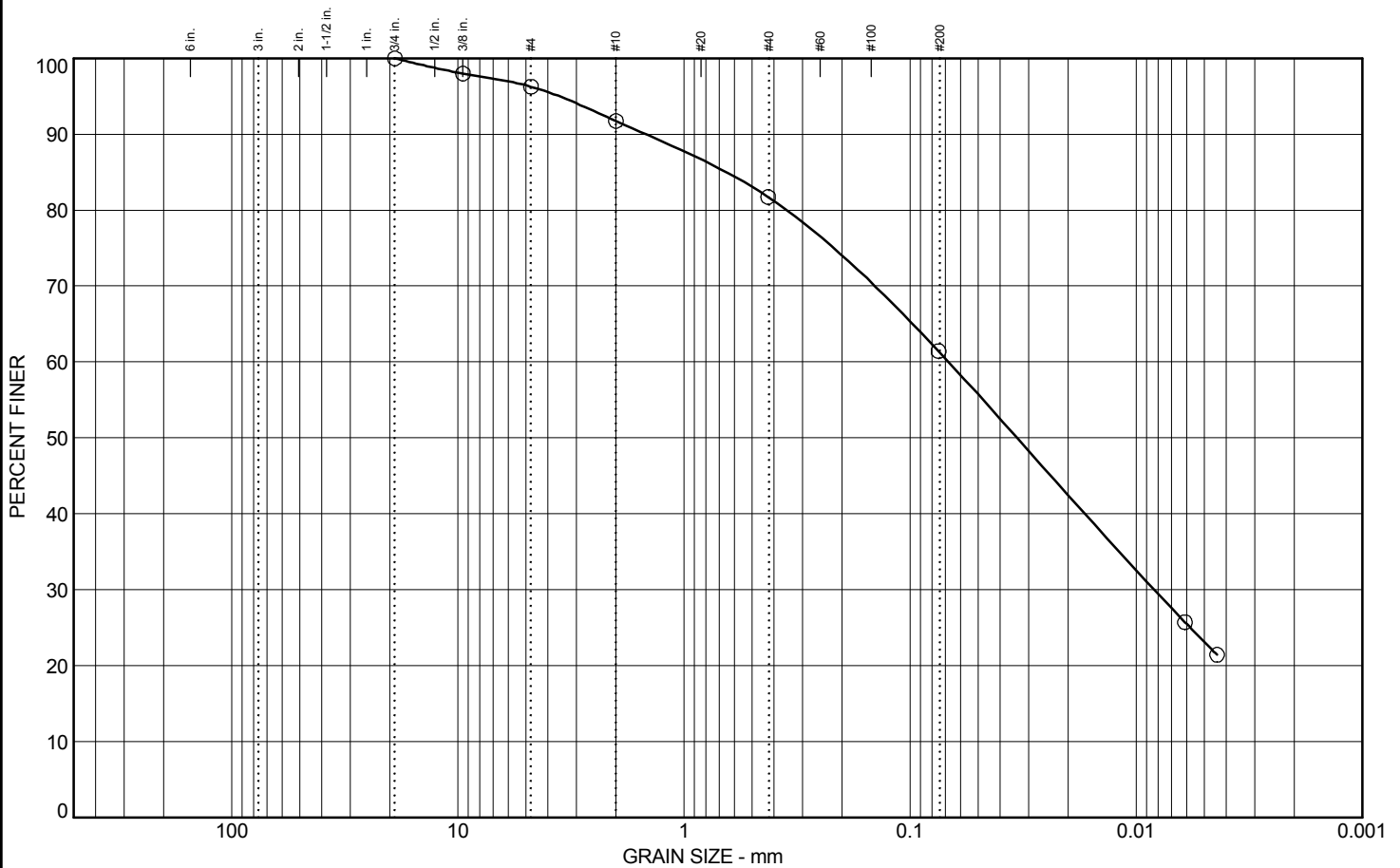
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	8.3	10.1	20.2	38.3	23.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.0		
4.75	96.3		
2	91.7		
0.425	81.7		
0.075	61.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 14.5%

Atterberg Limits

LL = 22

PL = 14

PI = 8

Coefficients

$D_{85} = 0.705$

$D_{60} = 0.068$

$D_{50} = 0.034$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 4

Source of Sample: B-076

Date: 4/11/09

Location: -

Depth / Elev: 6' / 757.52'



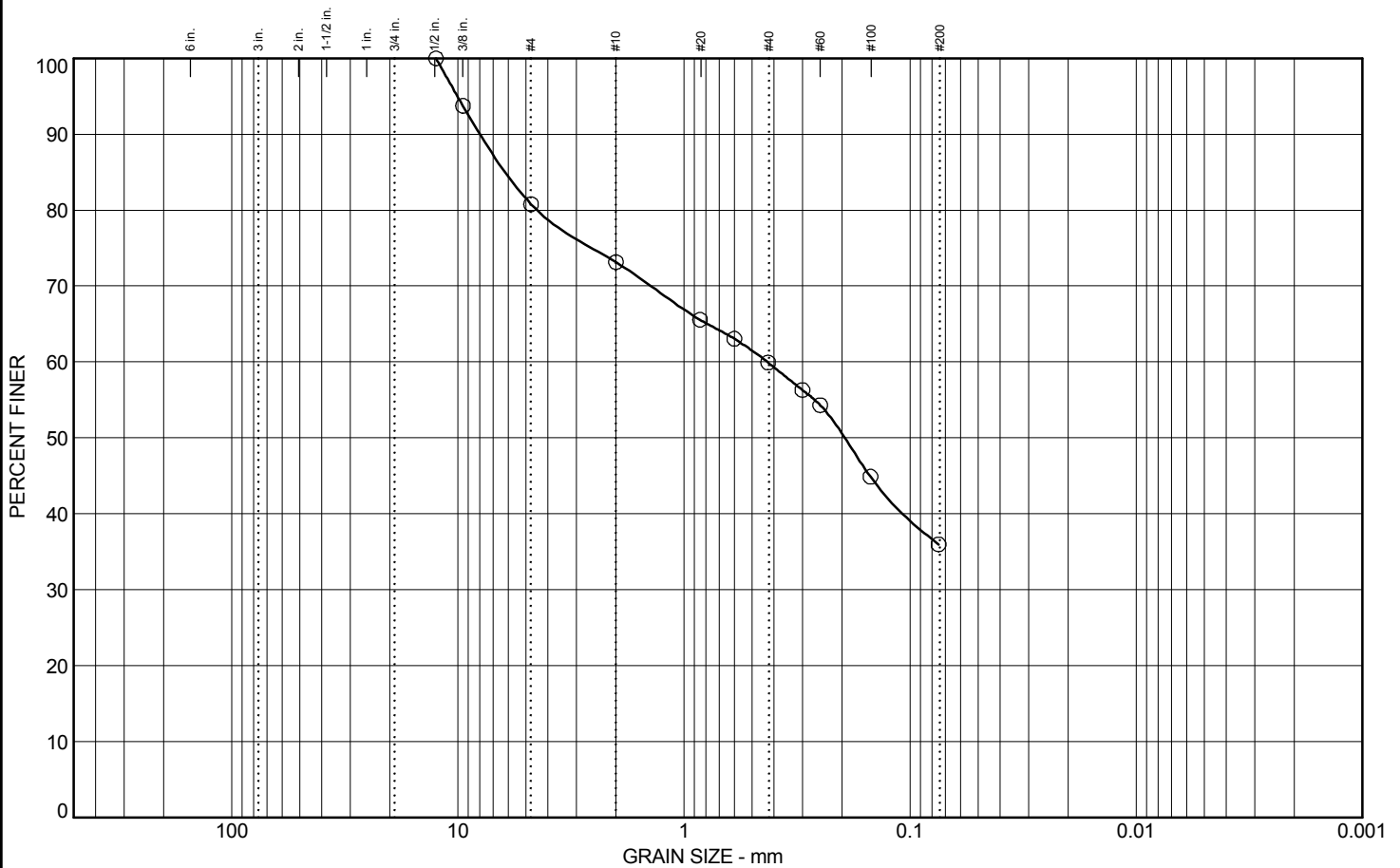
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	26.9	13.4	23.8	36.0	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5	100.0		
9.5	93.8		
4.75	80.8		
2	73.1		
0.85	65.6		
0.6	63.1		
0.425	59.9		
0.3	56.3		
0.25	54.3		
0.15	44.9		
0.075	36.0		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 6.1%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 5.95$
 $D_{30} =$
 $C_u =$
 $D_{60} = 0.429$
 $D_{15} =$
 $C_c =$
 $D_{50} = 0.198$
 $D_{10} =$

Classification

ODOT = A-4a

Remarks

Group Index = 0

Sample No.: 1
Location: -

Source of Sample: B-077

Date: 4/27/09
Depth / Elev: 1.5' / 759.34'



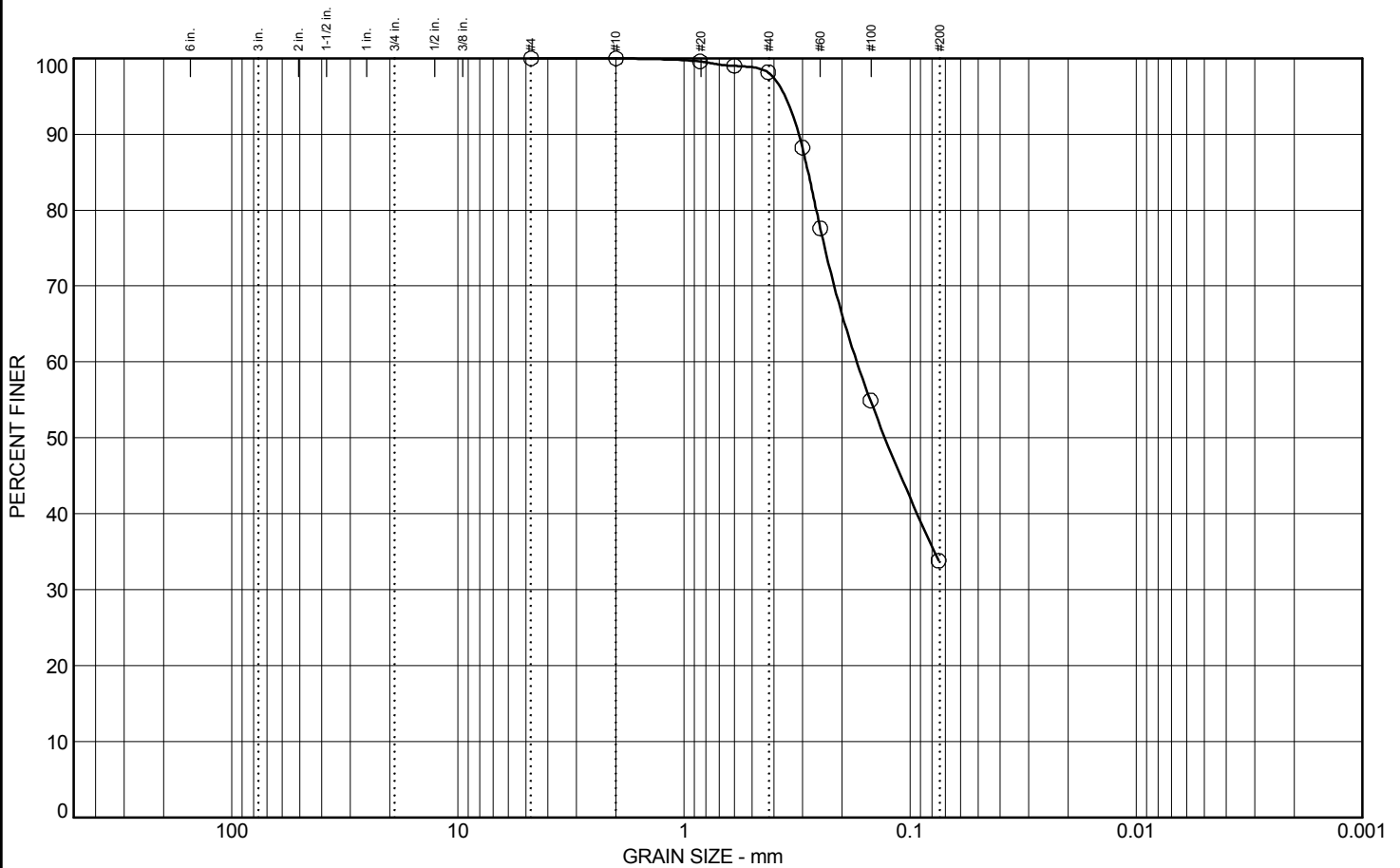
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.0	2.1	64.0	33.8	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	100.0		
0.85	99.6		
0.6	99.0		
0.425	98.2		
0.3	88.2		
0.25	77.6		
0.15	54.9		
0.075	33.8		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 12.6%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 0.284$
 $D_{30} =$
 $C_u =$
 $D_{60} = 0.168$
 $D_{15} =$
 $C_c =$
 $D_{50} = 0.128$
 $D_{10} =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 2

Location: -

Source of Sample: B-077

Date: 4/27/09

Depth / Elev: 3' / 757.84'



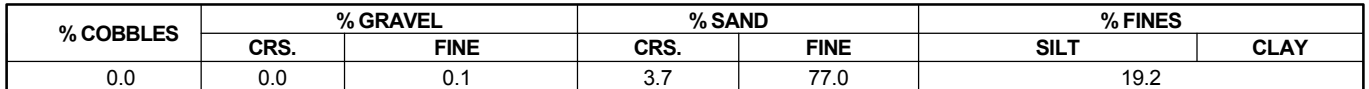
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

GRAIN SIZE II - DLZ MOD - GINT STD US LAB.GDT - 5/22/09 13:29 - S:\DEPT\GEOTECHNICAL\GINT\PROJECTS\0221-1004-01.GPJ

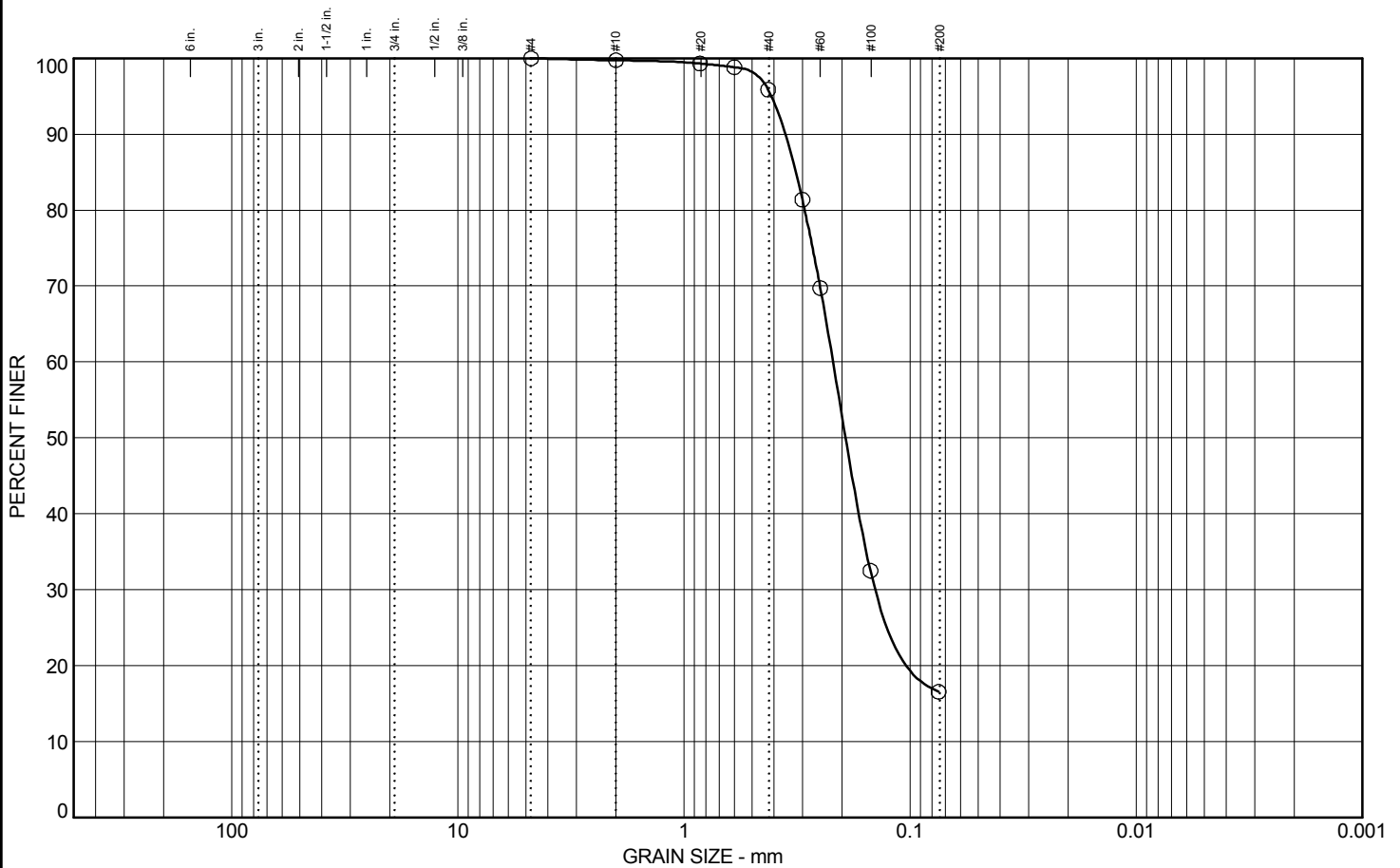


<u>Soil Description</u>		
fine sand, non-plastic silt		
<u>General Characteristics</u>		
Moisture Content = 14.1%		
<u>Atterberg Limits</u>		
LL=	PL=	PI= Non-plastic
<u>Coefficients</u>		
$D_{85} = 0.295$	$D_{60} = 0.205$	$D_{50} = 0.181$
$D_{30} = 0.12$	$D_{15} =$	$D_{10} =$
$C_u =$	$C_c =$	
<u>Classification</u>		
ODOT = A-3a		
<u>Remarks</u>		
Group Index = 0		



Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	0.3	4.4	78.9	16.5	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
4.75	100.0		
2	99.7		
0.85	99.3		
0.6	98.8		
0.425	95.9		
0.3	81.4		
0.25	69.7		
0.15	32.5		
0.075	16.5		

* (no specification provided)

Soil Description

fine sand, non-plastic silt

General Characteristics

Moisture Content = 23.8%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 0.327$
 $D_{30} = 0.135$
 $C_u =$
 $D_{60} = 0.219$
 $D_{15} =$
 $C_c =$
 $D_{50} = 0.191$
 $D_{10} =$

Classification

ODOT = A-3a

Remarks

Group Index = 0

Sample No.: 4

Location: -

Source of Sample: B-077

Date: 4/27/09

Depth / Elev: 6' / 754.84'



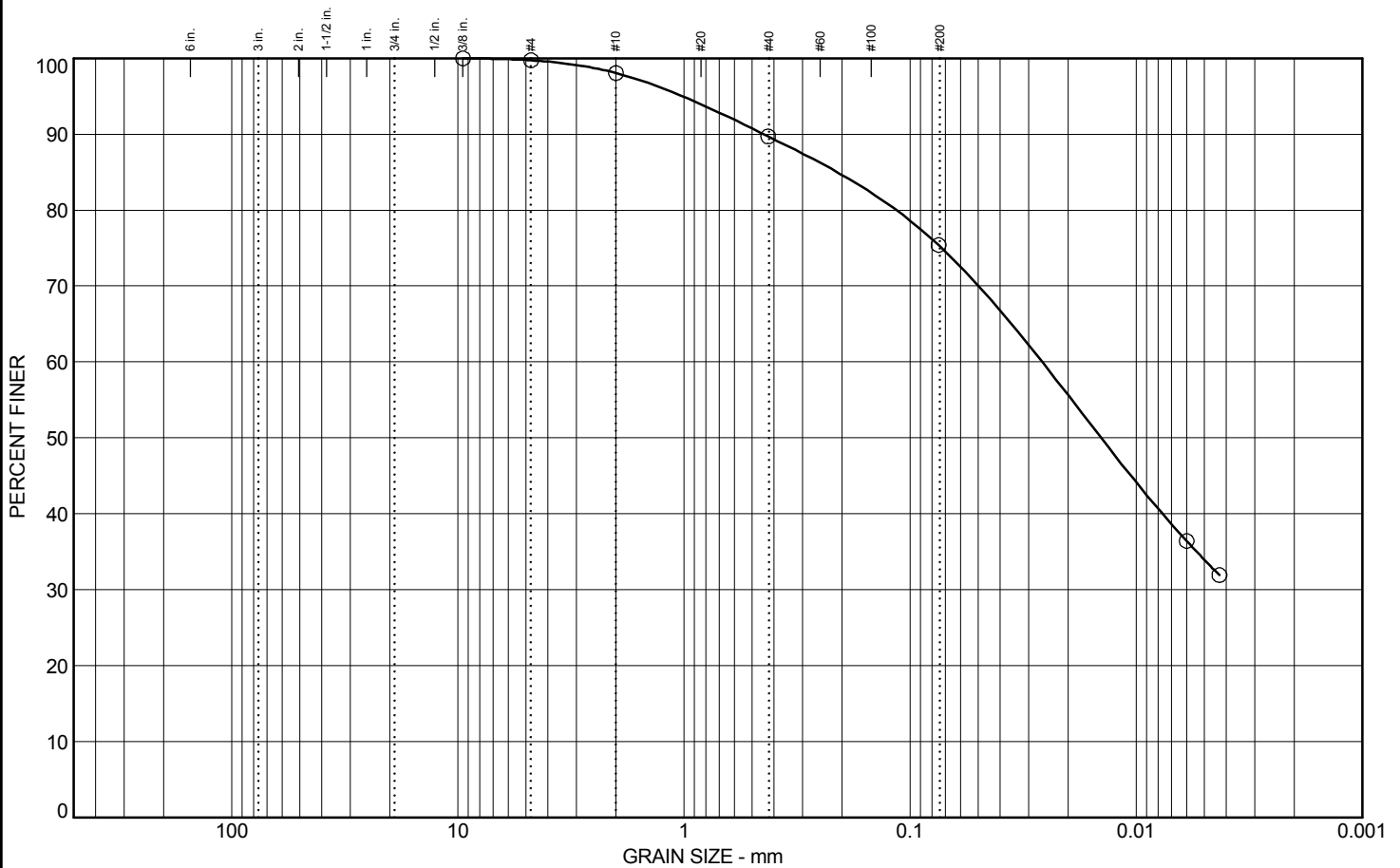
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	1.9	8.4	14.2	41.5	33.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	99.7		
2	98.1		
0.425	89.7		
0.075	75.4		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 12.2%

Atterberg Limits

LL= 27

PL= 17

PI= 10

Coefficients

$D_{85} = 0.24$

$D_{60} = 0.028$

$D_{50} = 0.014$

$D_{30} =$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 9

Sample No.: 7

Source of Sample: B-077

Location: -

Date: 4/27/09

Depth / Elev: 13.5' / 747.34'



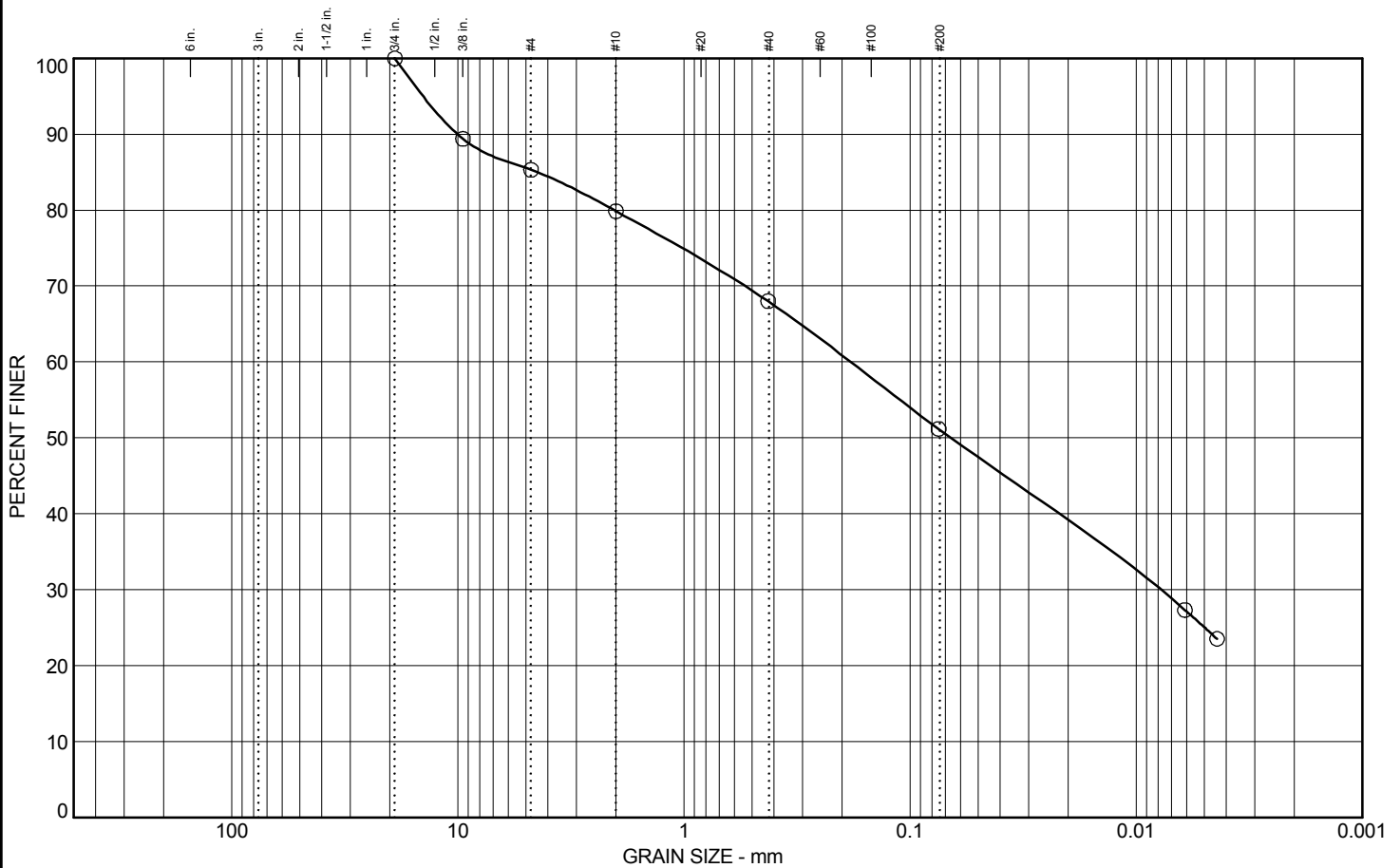
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	20.1	12.0	16.7	26.2	25.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	89.4		
4.75	85.3		
2	79.9		
0.425	68.0		
0.075	51.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.1%

Atterberg Limits

LL = 26

PL = 14

PI = 12

Coefficients

$D_{85} = 4.523$

$D_{60} = 0.186$

$D_{50} = 0.066$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-6a

Remarks

Group Index = 4

Sample No.: 2

Source of Sample: B-078

Date: 4/22/09

Location: -

Depth / Elev: 3.5' / 754.98'



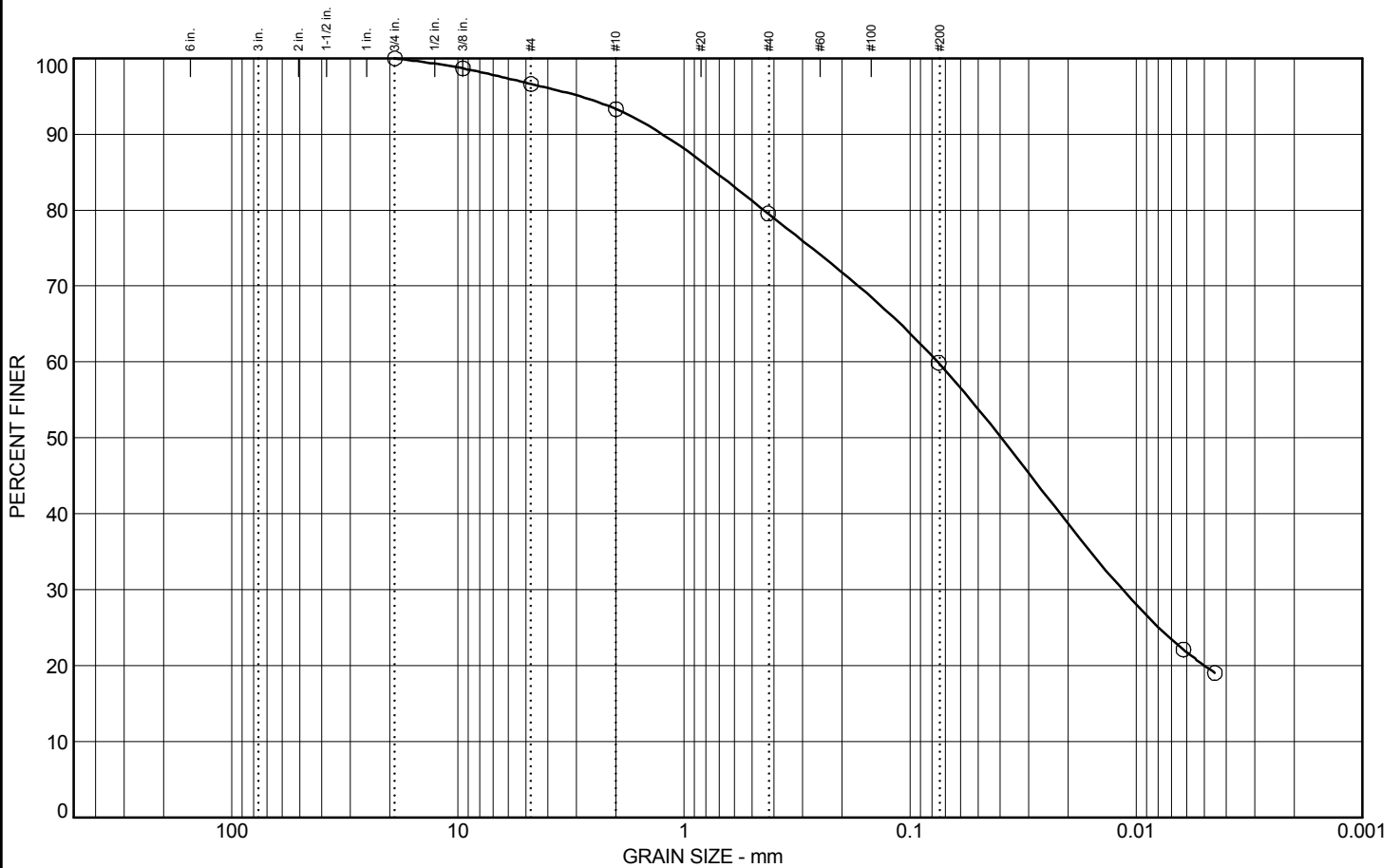
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.7	13.9	19.5	39.9	20.0

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.7		
4.75	96.6		
2	93.3		
0.425	79.5		
0.075	59.9		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.8%

Atterberg Limits

LL= 23

PL= 15

PI= 8

Coefficients

$D_{85} = 0.785$

$D_{60} = 0.076$

$D_{50} = 0.039$

$D_{30} = 0.01$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 6

Sample No.: 3

Source of Sample: B-078

Date: 4/22/09

Location: -

Depth / Elev: 5' / 753.48'



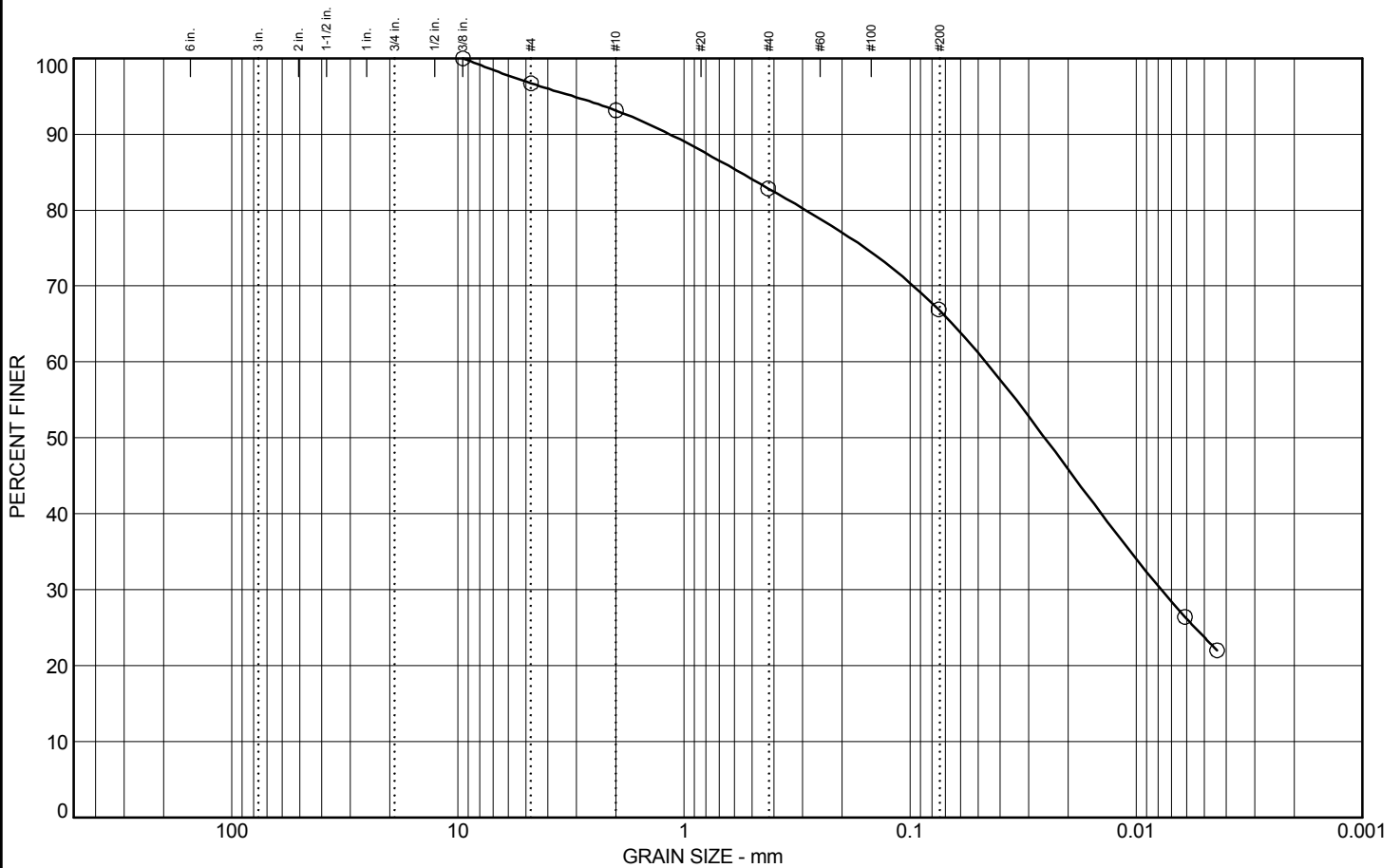
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.9	10.4	15.8	43.2	23.7

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	96.7		
2	93.1		
0.425	82.9		
0.075	66.9		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 10.6%

Atterberg Limits

LL= 24

PL= 15

PI= 9

Coefficients

$D_{85} = 0.587$

$D_{60} = 0.049$

$D_{50} = 0.026$

$D_{30} = 0.008$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 7

Sample No.: 4

Source of Sample: B-078

Location: -

Date: 4/22/09

Depth / Elev: 6.5' / 751.98'



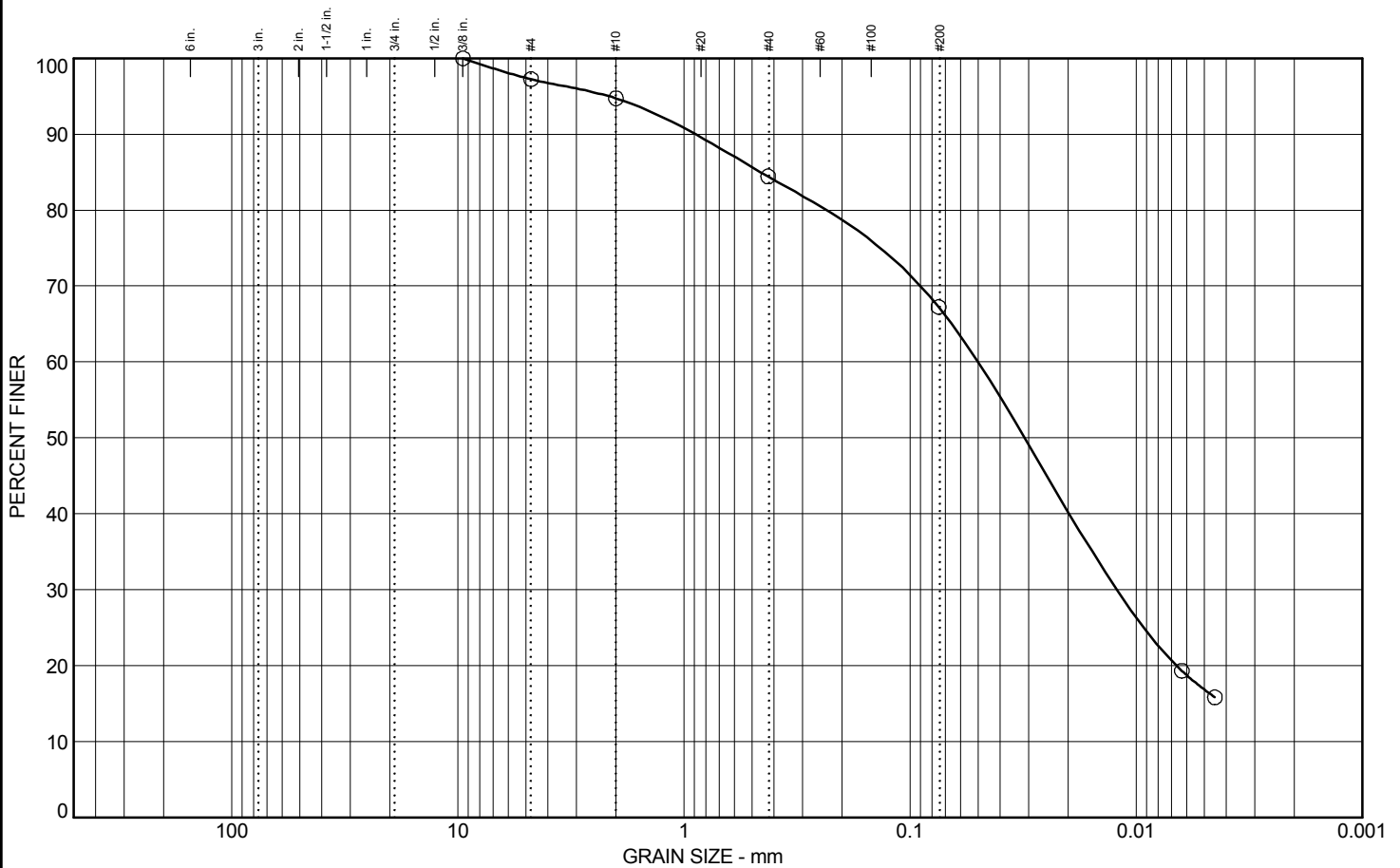
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	5.3	10.4	17.1	50.3	16.9

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	97.3		
2	94.7		
0.425	84.4		
0.075	67.2		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 9.2%

Atterberg Limits

LL= 23

PL= 15

PI= 8

Coefficients

$D_{85} = 0.463$

$D_{60} = 0.052$

$D_{50} = 0.031$

$D_{30} = 0.011$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4b

Remarks

Group Index = 7

Sample No.: 5A

Source of Sample: B-078

Date: 4/22/09

Location: -

Depth / Elev: 8' / 750.48'



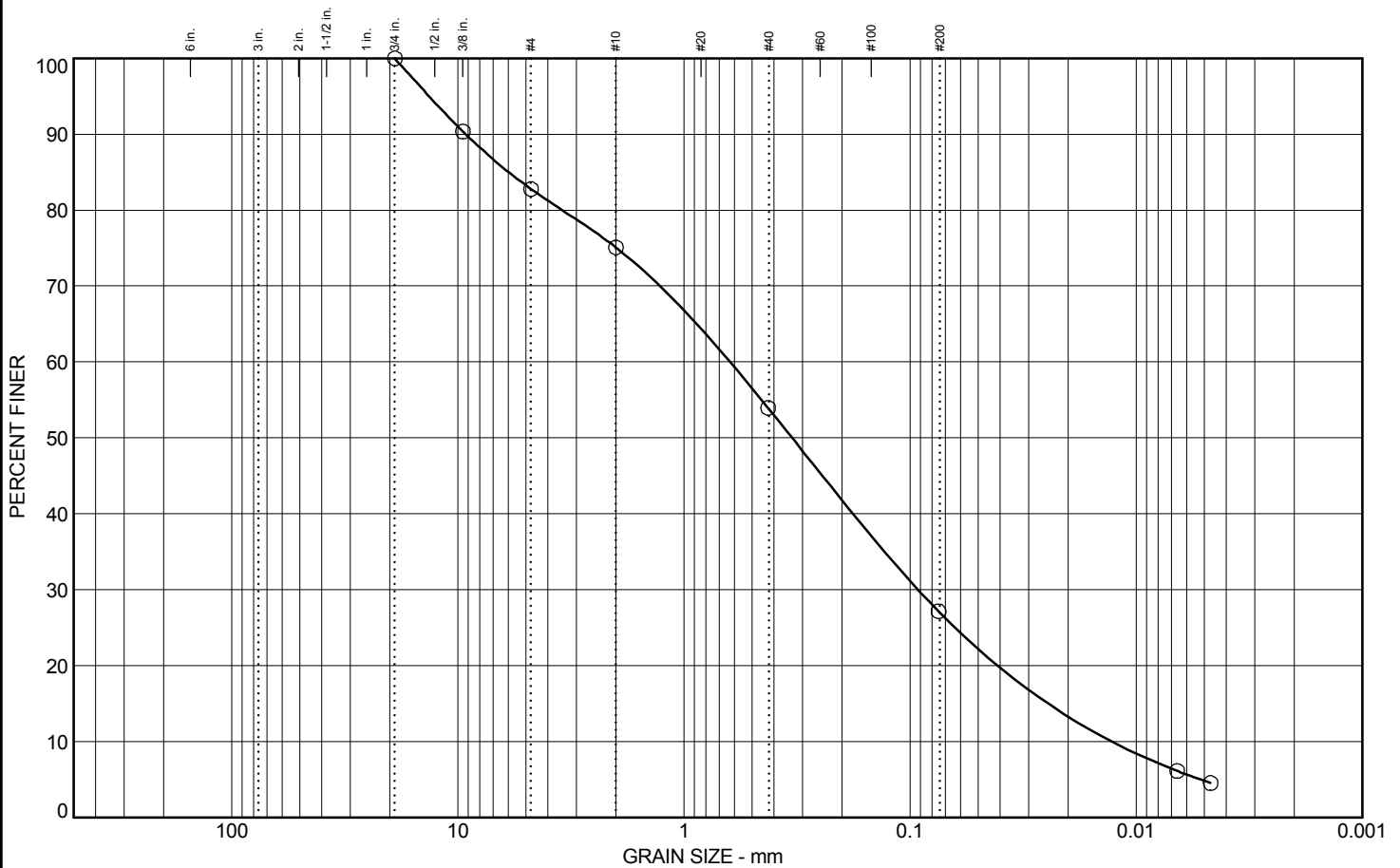
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	24.9	21.3	26.6	22.3	4.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	90.4		
4.75	82.8		
2	75.1		
0.425	53.9		
0.075	27.1		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 9.2%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 5.825$

$D_{60} = 0.663$

$D_{50} = 0.329$

$D_{30} = 0.09$

$D_{15} = 0.018$

$D_{10} = 0.01$

$C_u = 64.01$

$C_c = 1.19$

Classification

ODOT = A-2-4

Remarks

Group Index = 0

Sample No.: 2

Source of Sample: B-079

Location: -

Date: 4/13/09

Depth / Elev: 3.5' / 755.83'



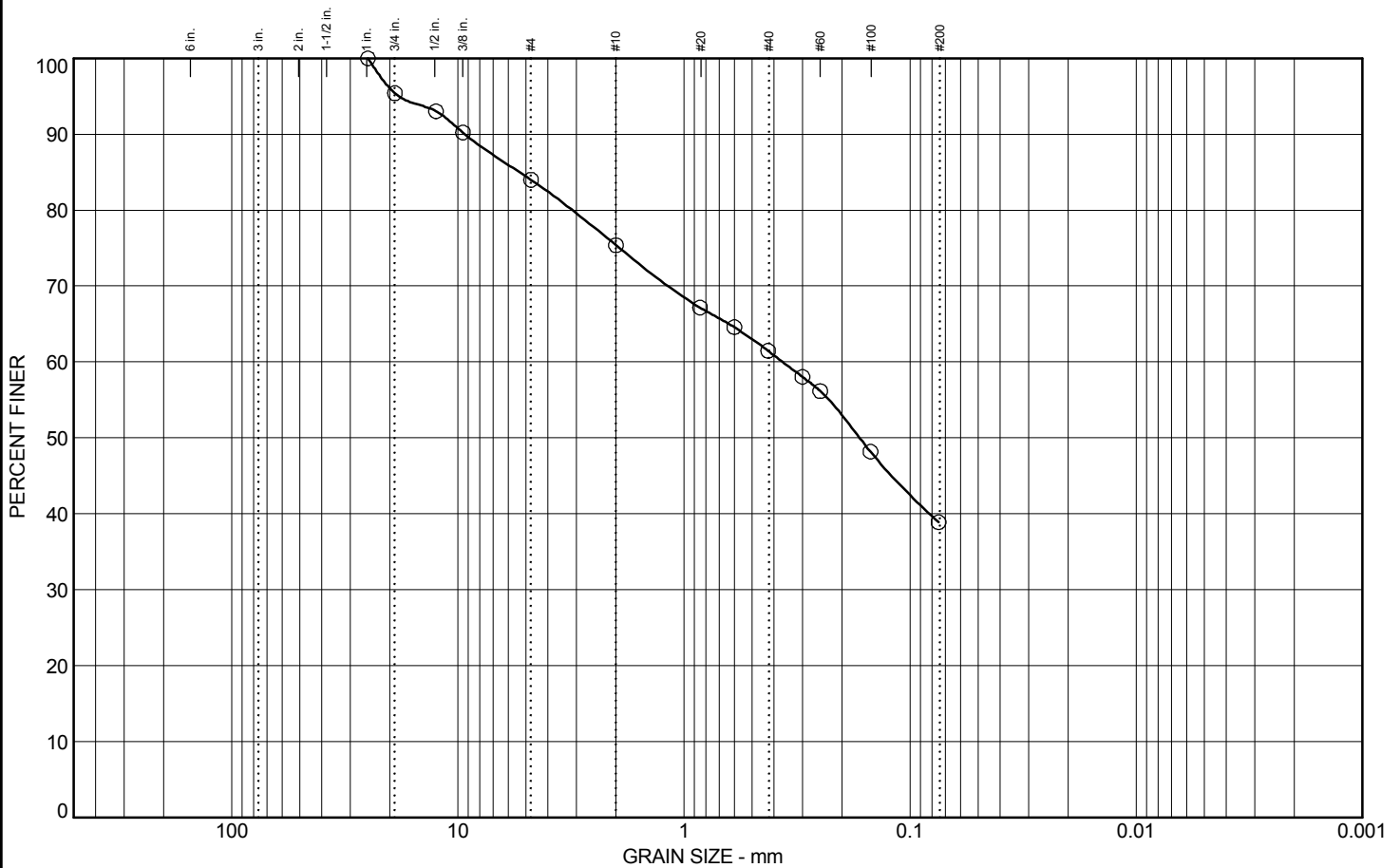
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	4.6	20.0	14.0	22.5	38.9	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
25	100.0		
19	95.4		
12.5	93.0		
9.5	90.2		
4.75	84.0		
2	75.4		
0.85	67.2		
0.6	64.6		
0.425	61.5		
0.3	58.0		
0.25	56.1		
0.15	48.2		
0.075	38.9		

* (no specification provided)

Soil Description

fine to medium sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 10.0%

Atterberg Limits

LL= PL= PI= Non-plastic

Coefficients

$D_{85} = 5.311$
 $D_{60} = 0.367$
 $D_{50} = 0.169$
 $D_{30} =$
 $D_{15} =$
 $C_u =$
 $C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 1

Sample No.: 3

Location: -

Source of Sample: B-079

Date: 4/13/09

Depth / Elev: 5' / 754.33'



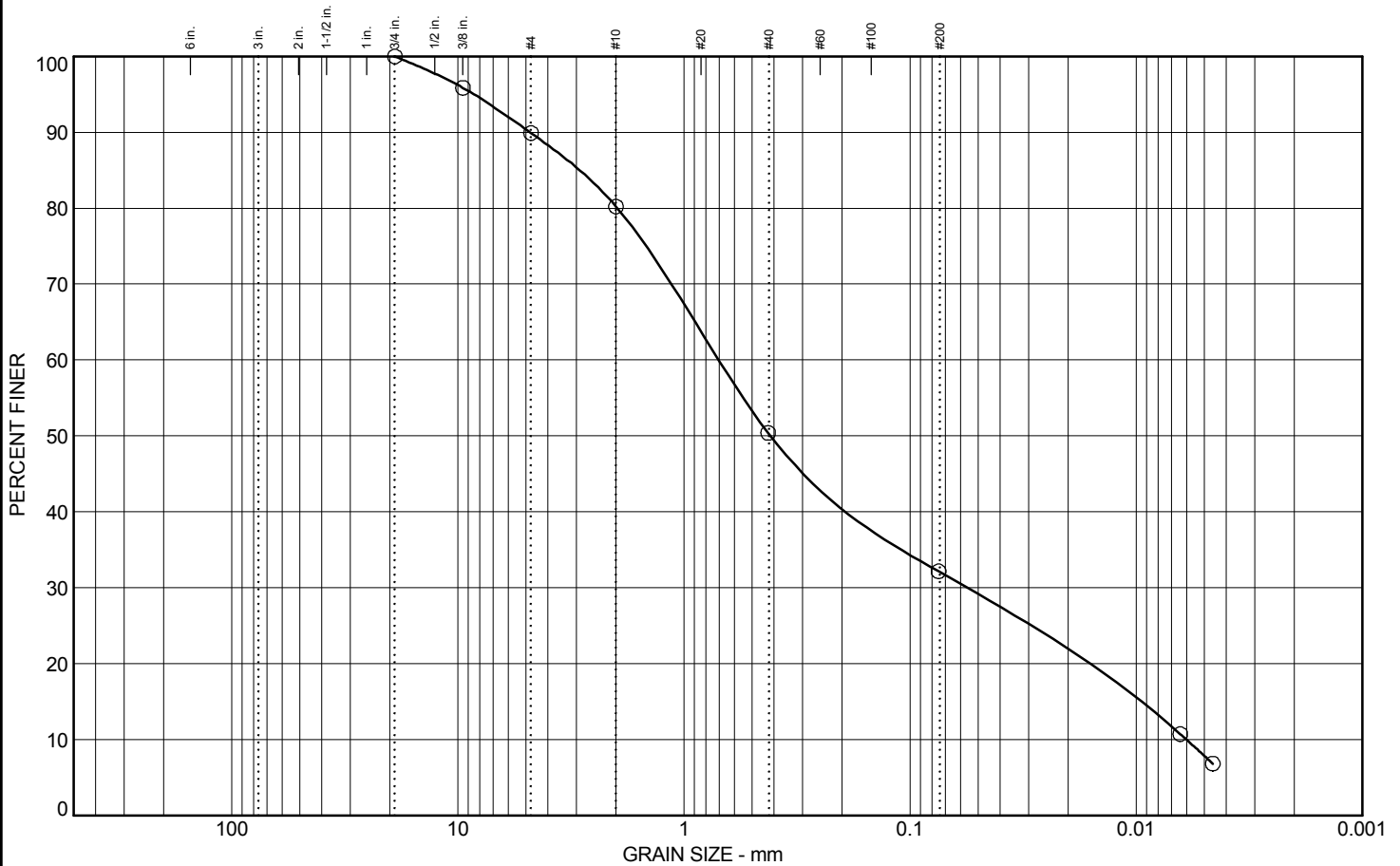
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	19.8	30.0	18.1	24.4	7.8

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.9		
4.75	89.9		
2	80.2		
0.425	50.4		
0.075	32.1		

* (no specification provided)

Soil Description

fine to medium sand, low plasticity clay

General Characteristics

Moisture Content = 8.7%

Atterberg Limits

LL = 22

PL = 17

PI = 5

Coefficients

$D_{85} = 3.065$

$D_{60} = 0.7$

$D_{50} = 0.41$

$D_{30} = 0.059$

$D_{15} = 0.01$

$D_{10} = 0.006$

$C_u = 116.07$

$C_c = 0.81$

Classification

ODOT = A-2-4

Remarks

Group Index = 0

Sample No.: 4

Source of Sample: B-079

Location: -

Date: 4/13/09

Depth / Elev: 6.5' / 752.83'



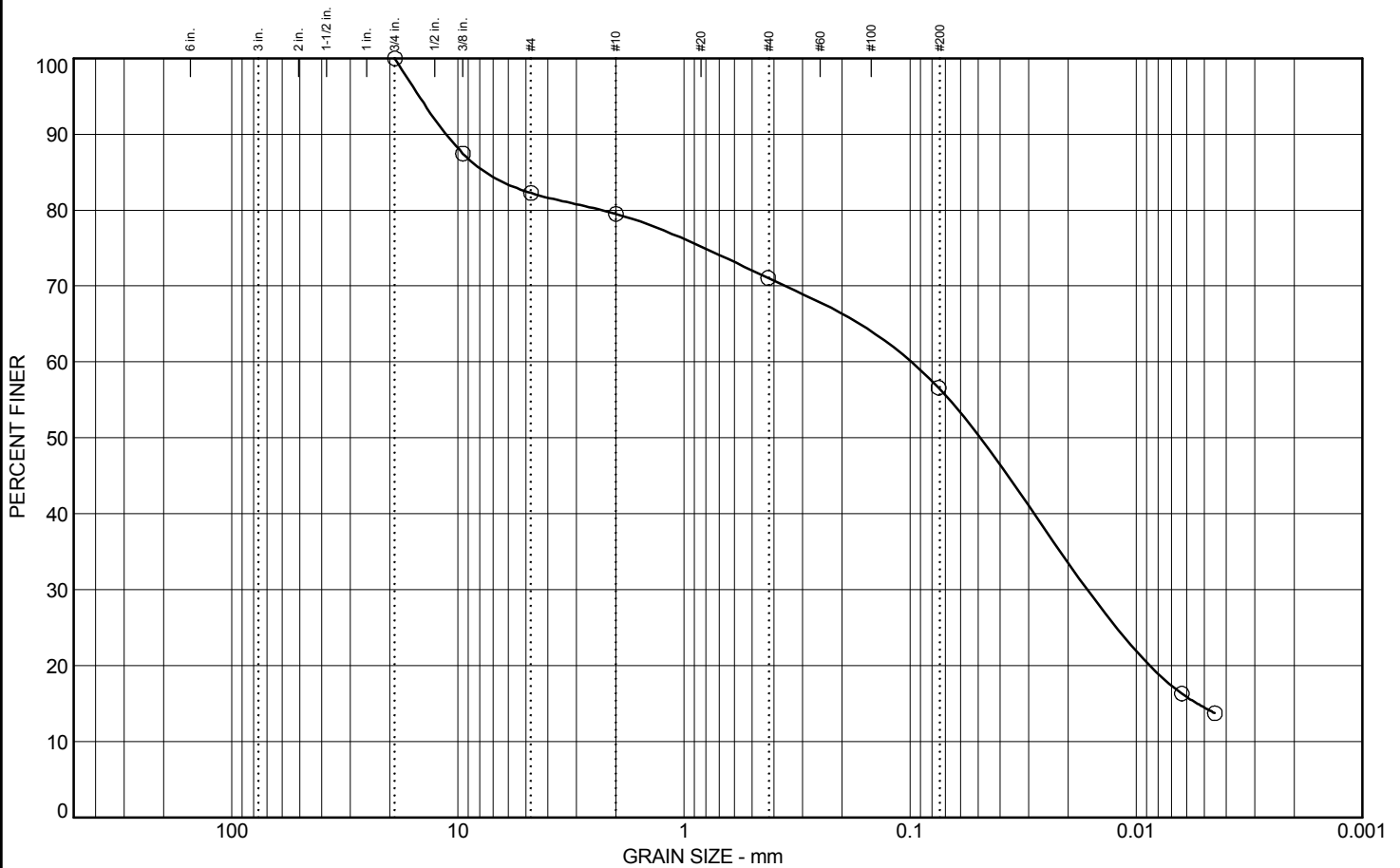
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	20.5	8.5	14.4	42.1	14.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	87.5		
4.75	82.3		
2	79.5		
0.425	71.1		
0.075	56.6		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand, fine gravel

General Characteristics

Moisture Content = 11.2%

Atterberg Limits

LL= 23

PL= 17

PI= 6

Coefficients

$D_{85} = 6.847$

$D_{60} = 0.113$

$D_{50} = 0.05$

$D_{30} = 0.015$

$D_{15} = 0.005$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 5

Source of Sample: B-079

Date: 4/13/09

Location: -

Depth / Elev: 8' / 751.33'



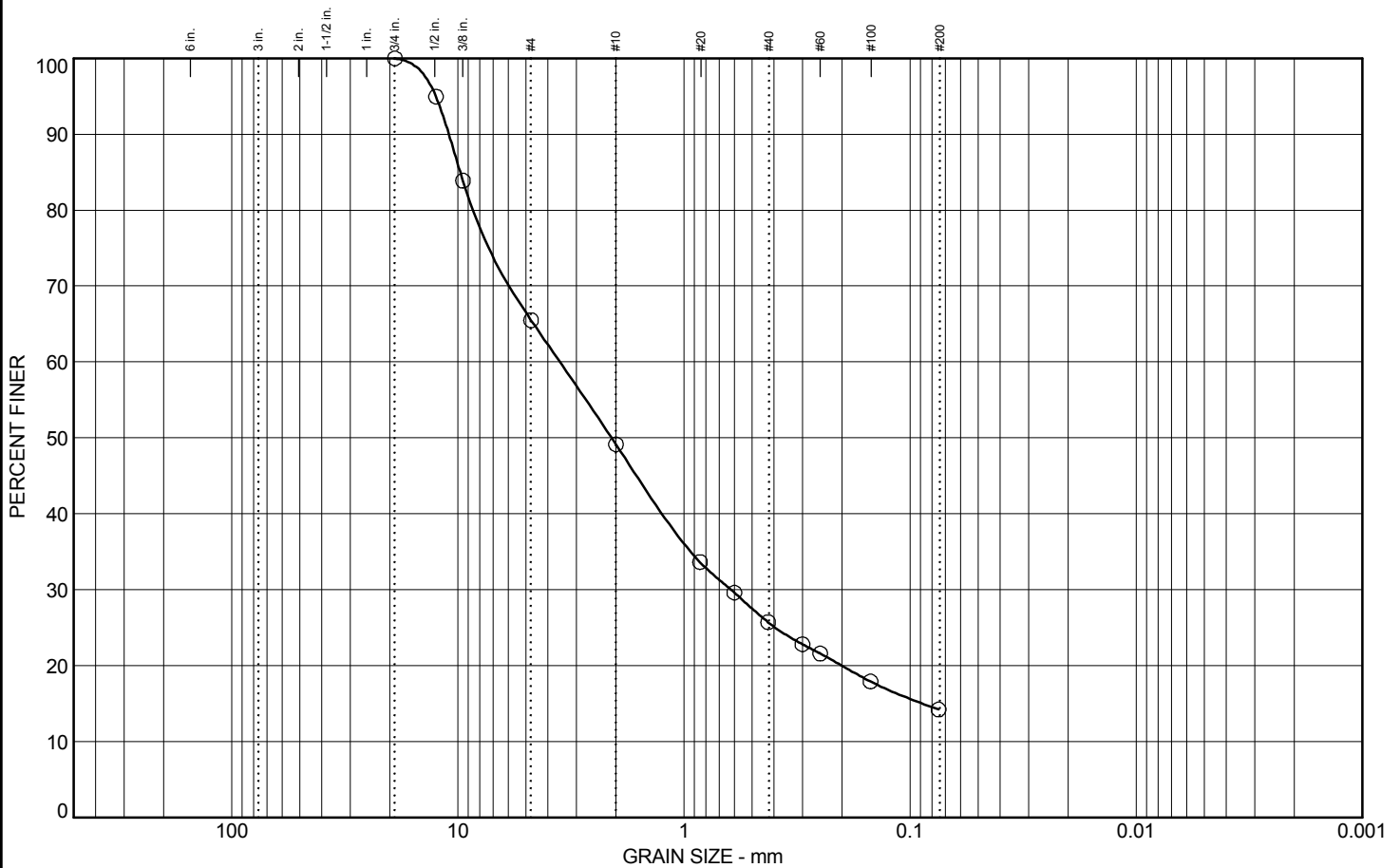
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	50.9	23.5	11.4	14.2	

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
12.5	95.0		
9.5	83.9		
4.75	65.5		
2	49.1		
0.85	33.6		
0.6	29.6		
0.425	25.7		
0.3	22.8		
0.25	21.6		
0.15	17.9		
0.075	14.2		

* (no specification provided)

Soil Description

medium to coarse sand, non-plastic silt, fine gravel

General Characteristics

Moisture Content = 3.3%

Atterberg Limits

LL=

PL=

PI= Non-plastic

Coefficients

$D_{85} = 9.769$

$D_{60} = 3.552$

$D_{50} = 2.094$

$D_{30} = 0.621$

$D_{15} = 0.087$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-1-a

Remarks

Group Index = 0

Sample No.: 1

Source of Sample: B-082

Date: 4/23/09

Location: -

Depth / Elev: 1' / 760.39'



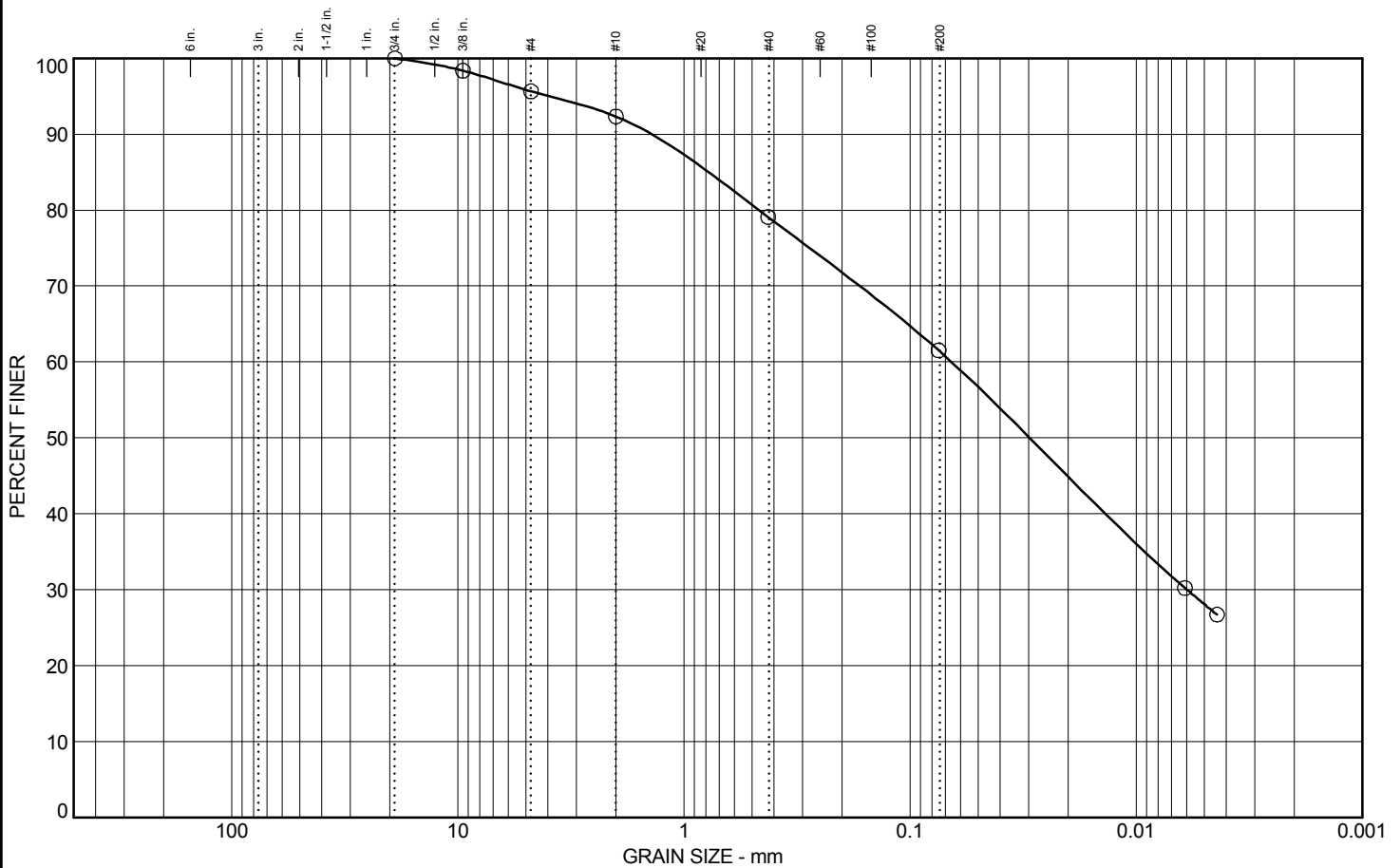
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	7.7	13.4	17.4	33.5	28.1

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	98.4		
4.75	95.6		
2	92.3		
0.425	79.1		
0.075	61.5		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 11.6%

Atterberg Limits

LL= 26

PL= 15

PI= 11

Coefficients

$D_{85} = 0.849$

$D_{30} = 0.006$

$C_u =$

$D_{60} = 0.066$

$D_{15} =$

$C_c =$

$D_{50} = 0.03$

$D_{10} =$

Classification

ODOT = A-6a

Remarks

Group Index = 6

Sample No.: 2

Location: -

Source of Sample: B-082

Date: 4/23/09

Depth / Elev: 2.5' / 758.89'



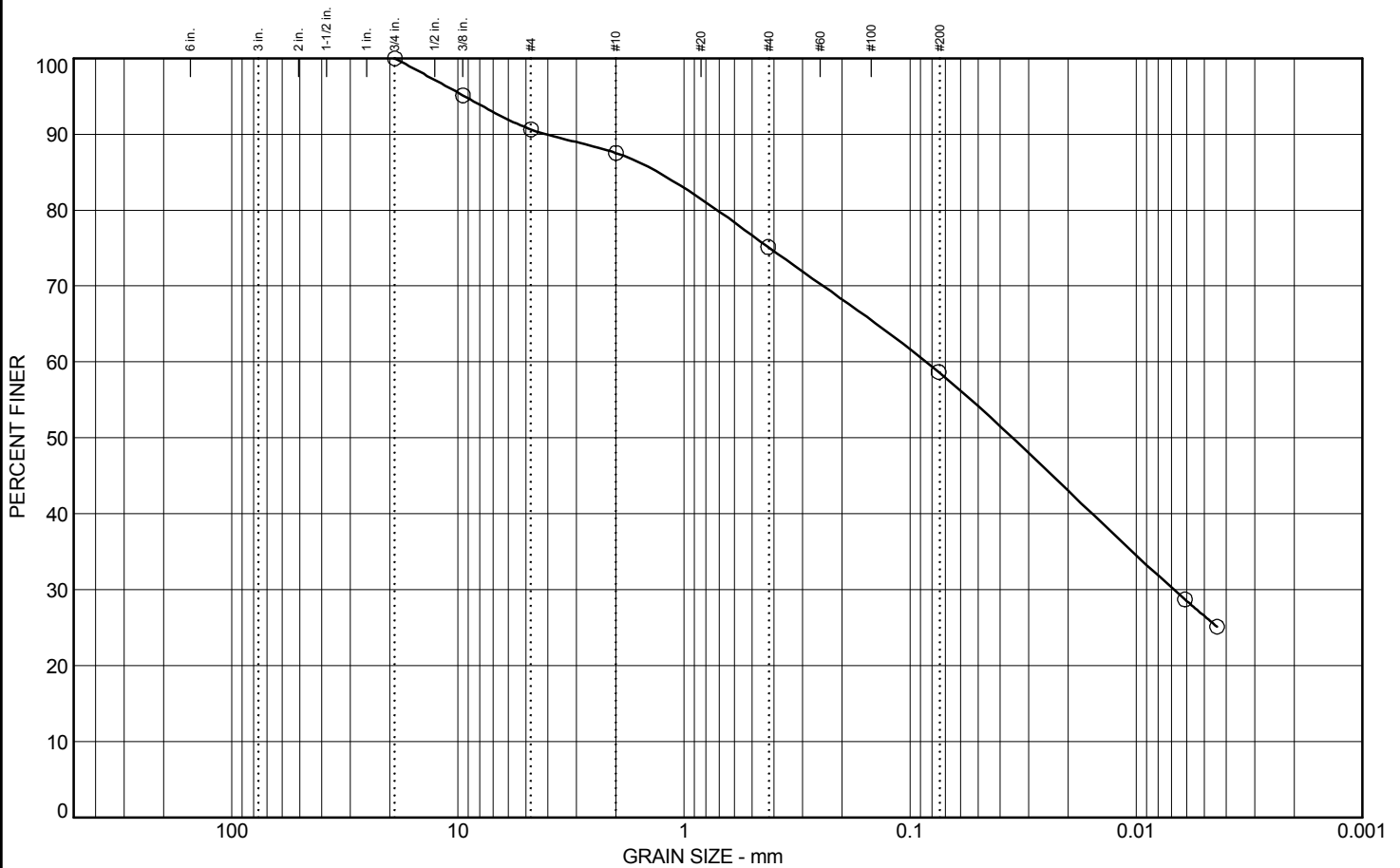
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	12.5	12.5	16.4	32.2	26.5

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
19	100.0		
9.5	95.1		
4.75	90.6		
2	87.5		
0.425	75.1		
0.075	58.7		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 13.7%

Atterberg Limits

LL= 25

PL= 16

PI= 9

Coefficients

$D_{85} = 1.457$

$D_{30} = 0.007$

$C_u =$

$D_{60} = 0.086$

$D_{15} =$

$C_c =$

$D_{50} = 0.036$

$D_{10} =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 3

Location: -

Source of Sample: B-082

Date: 4/23/09

Depth / Elev: 4' / 757.39'



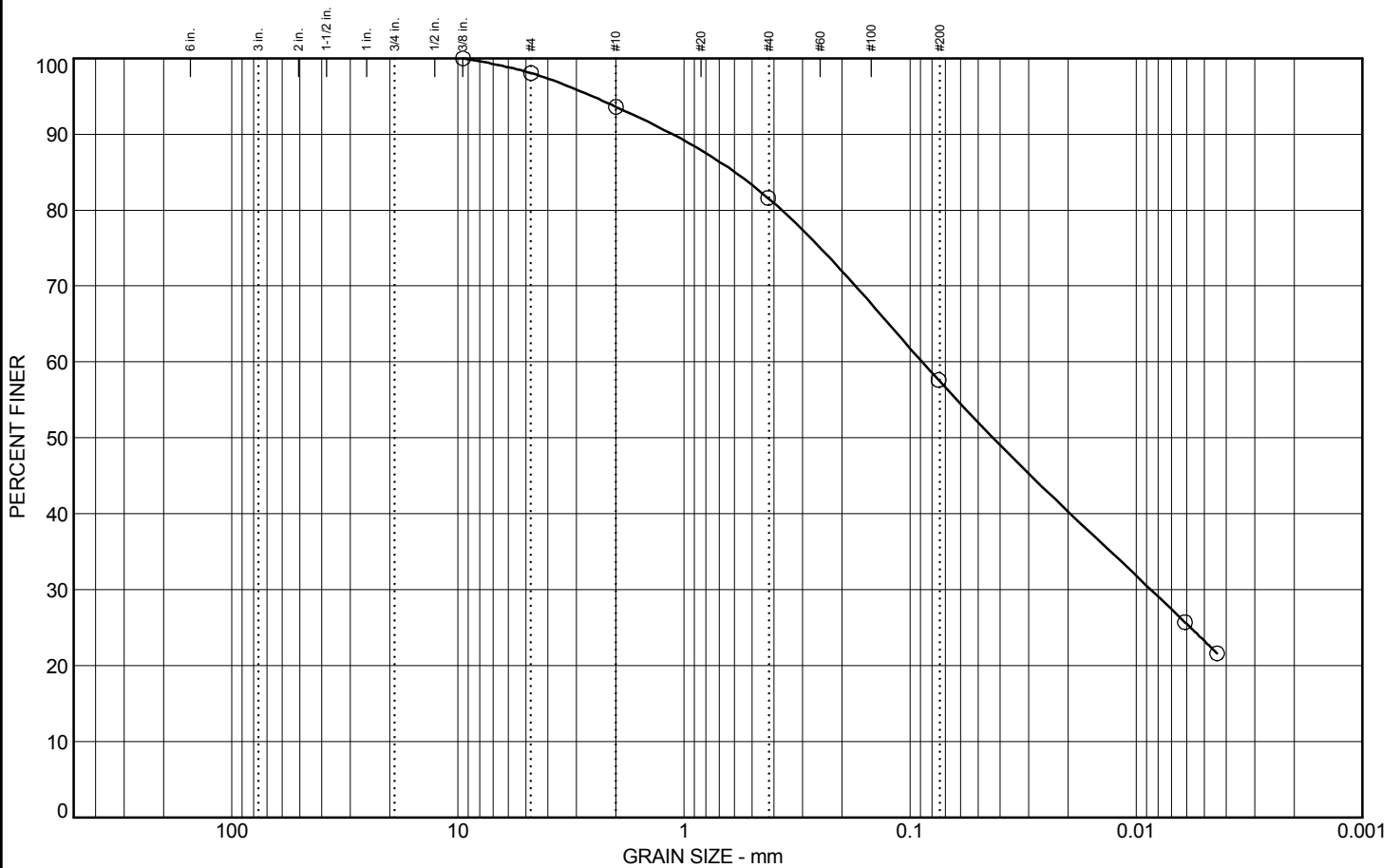
Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL		% SAND		% FINES	
	CRS.	FINE	CRS.	FINE	SILT	CLAY
0.0	0.0	6.4	12.2	23.8	34.4	23.2

SIEVE SIZE (mm)	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
9.5	100.0		
4.75	98.1		
2	93.6		
0.425	81.6		
0.075	57.6		

* (no specification provided)

Soil Description

low plasticity clay, fine to medium sand

General Characteristics

Moisture Content = 13.4%

Atterberg Limits

LL = 22

PL = 15

PI = 7

Coefficients

$D_{85} = 0.659$

$D_{60} = 0.089$

$D_{50} = 0.041$

$D_{30} = 0.009$

$D_{15} =$

$D_{10} =$

$C_u =$

$C_c =$

Classification

ODOT = A-4a

Remarks

Group Index = 5

Sample No.: 4

Source of Sample: B-082

Location: -

Date: 4/23/09

Depth / Elev: 5.5' / 755.89'



Client: ms consultants

Project: FRA-70-8.93

Project No: 0221-1004.01

Figure