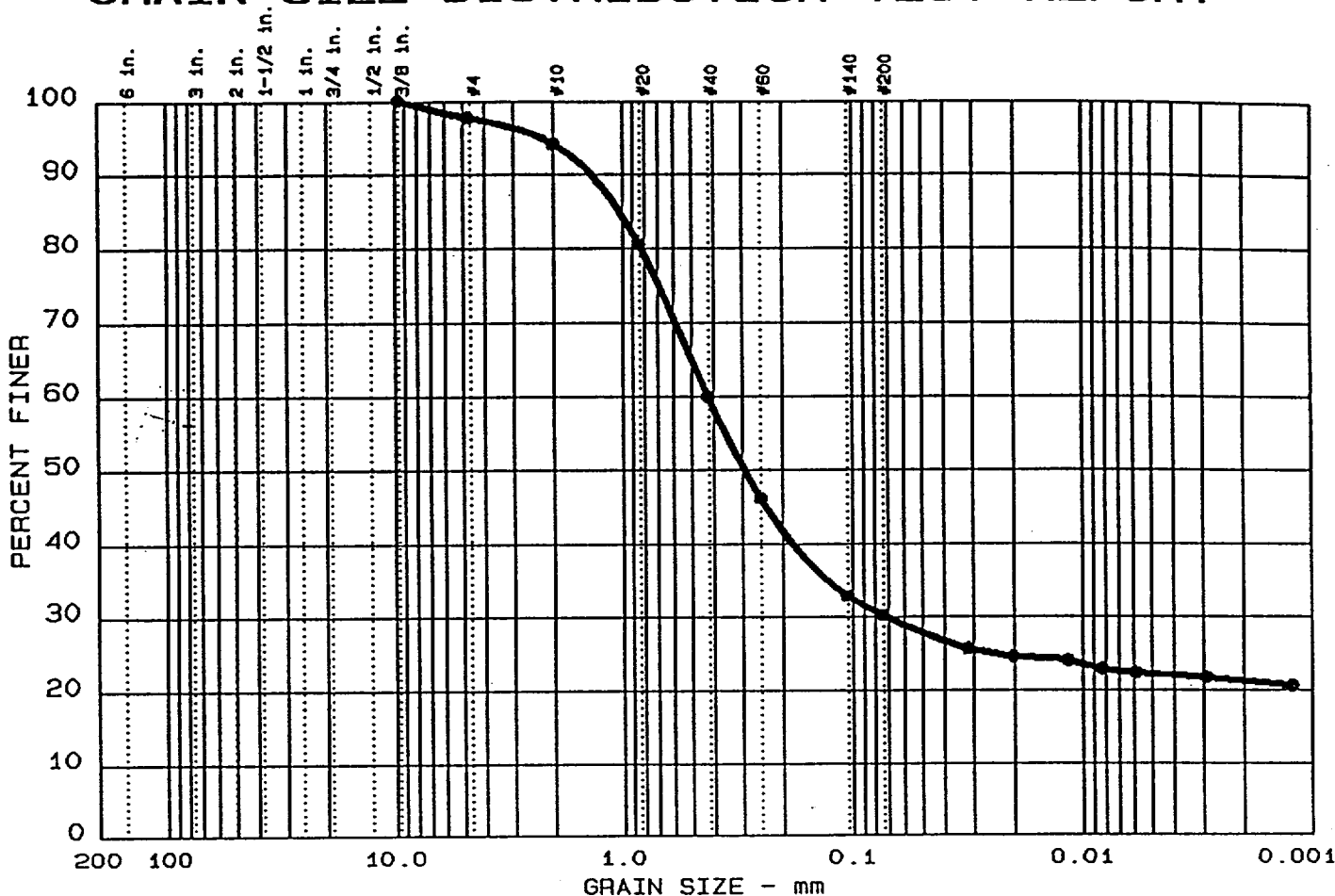


GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
12	0.0	2.3	67.6	7.8	22.3

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
48	25	1.01	0.42	0.29	0.072				

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clayey Sand	SC	A-2-7 (2.3)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-9 @ 20-21.5 Ft.

Date: March 27, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC
 Reviewed by: JS
 ASTM D422
 &
 ASTM D4318

Figure No.

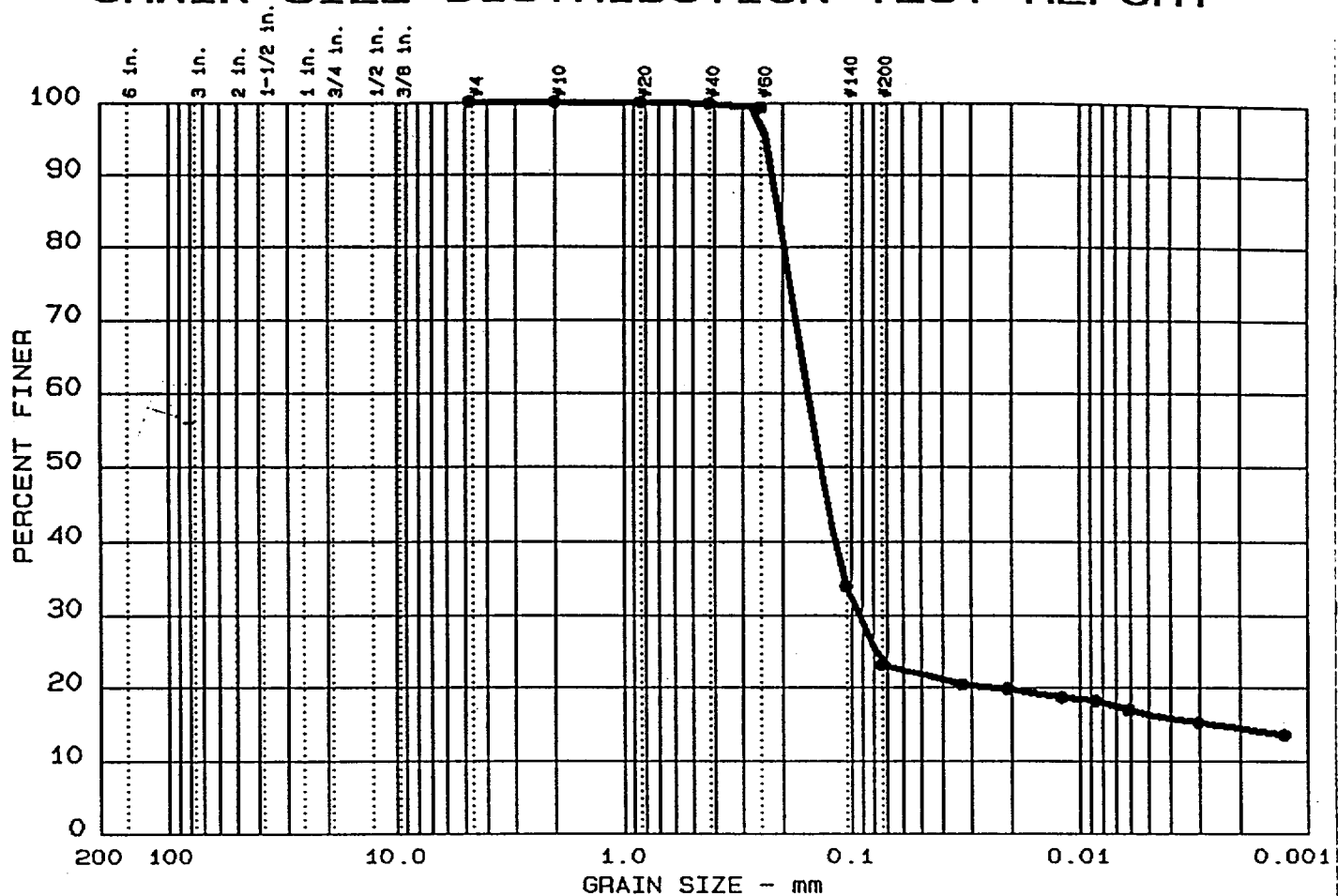
GRAIN SIZE DISTRIBUTION TEST REPORT

Sieve Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	80
10	94
4.75	98
2.5	54
1.18	38
0.6	24
0.3	21
0.15	20
0.075	19
0.0425	18
0.025	17
0.015	16

[illegible]

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing ● Location: FB-6 SS-10 @ 21.5-23 Ft.	Remarks: Tested by: SC & JTM Reviewed by: HB ASTM D422
Date: March 24, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	
	Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
9	0.0	0.0	76.8	6.8	16.4

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.21	0.15	0.14	0.092	0.0027			

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-11 @ 23-24.5 Ft.

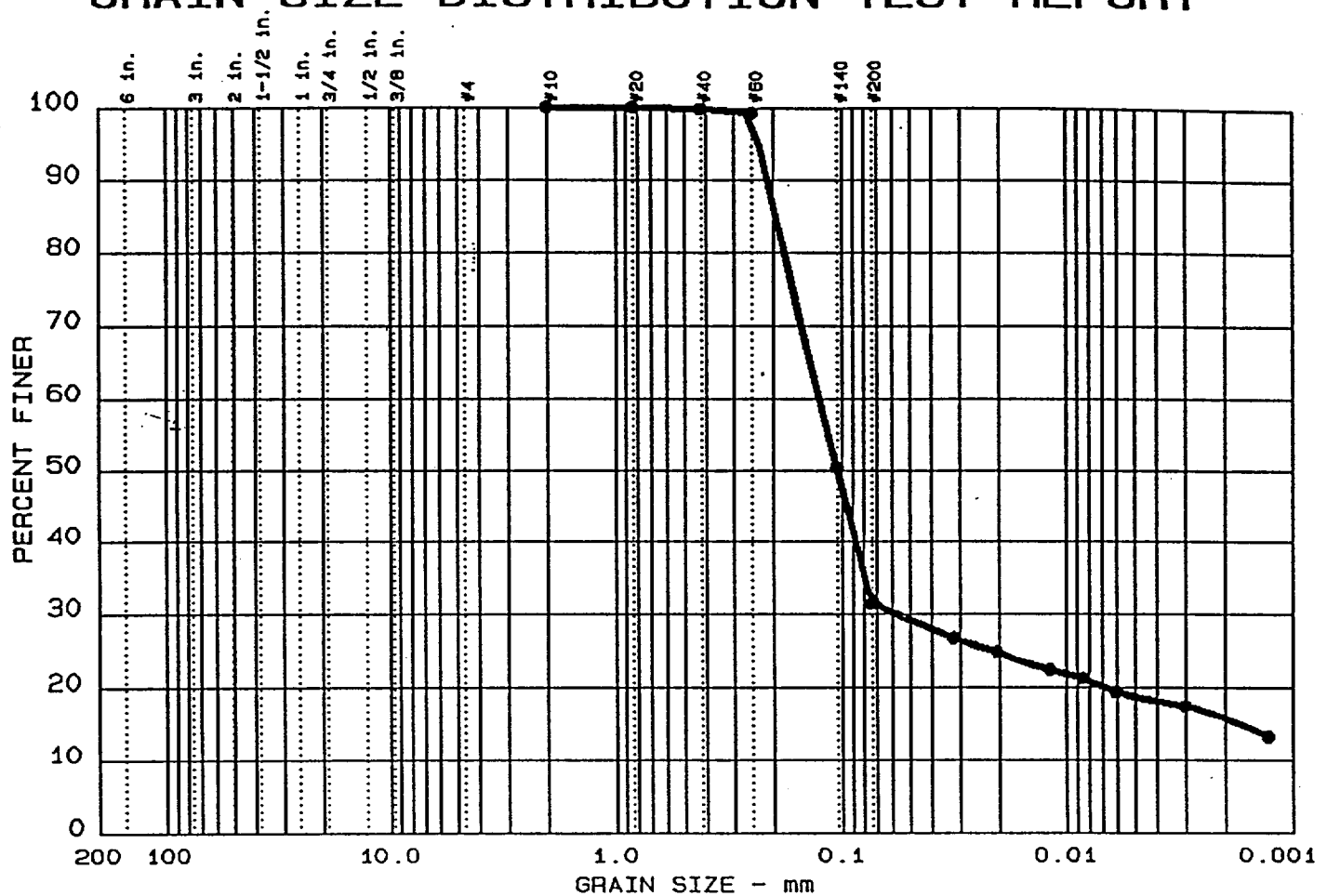
Date: March 24, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HW
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 10	0.0	0.0	68.8	12.5	18.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.19	0.13	0.10	0.059	0.0017			

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown & Tan Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-12 @ 24.5-26 Ft.

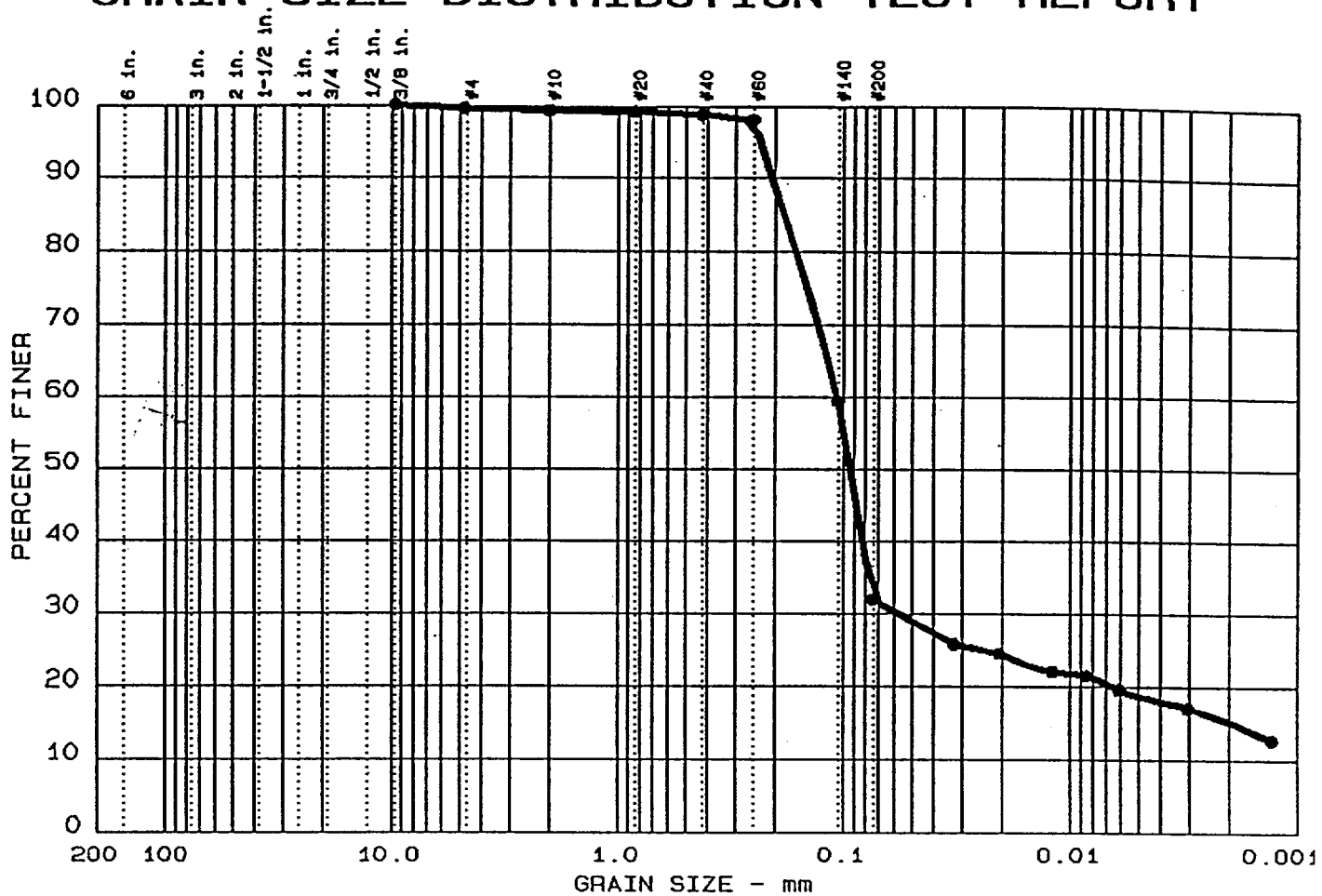
Date: March 24, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HJ
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 11	0.0	0.5	67.7	13.1	18.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 35	10	0.18	0.11	0.09	0.057	0.0019			

MATERIAL DESCRIPTION...	USCS...	AASHTO...
• Red Brown & Tan Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-13 @ 26-27.5 Ft.

Date: March 27, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

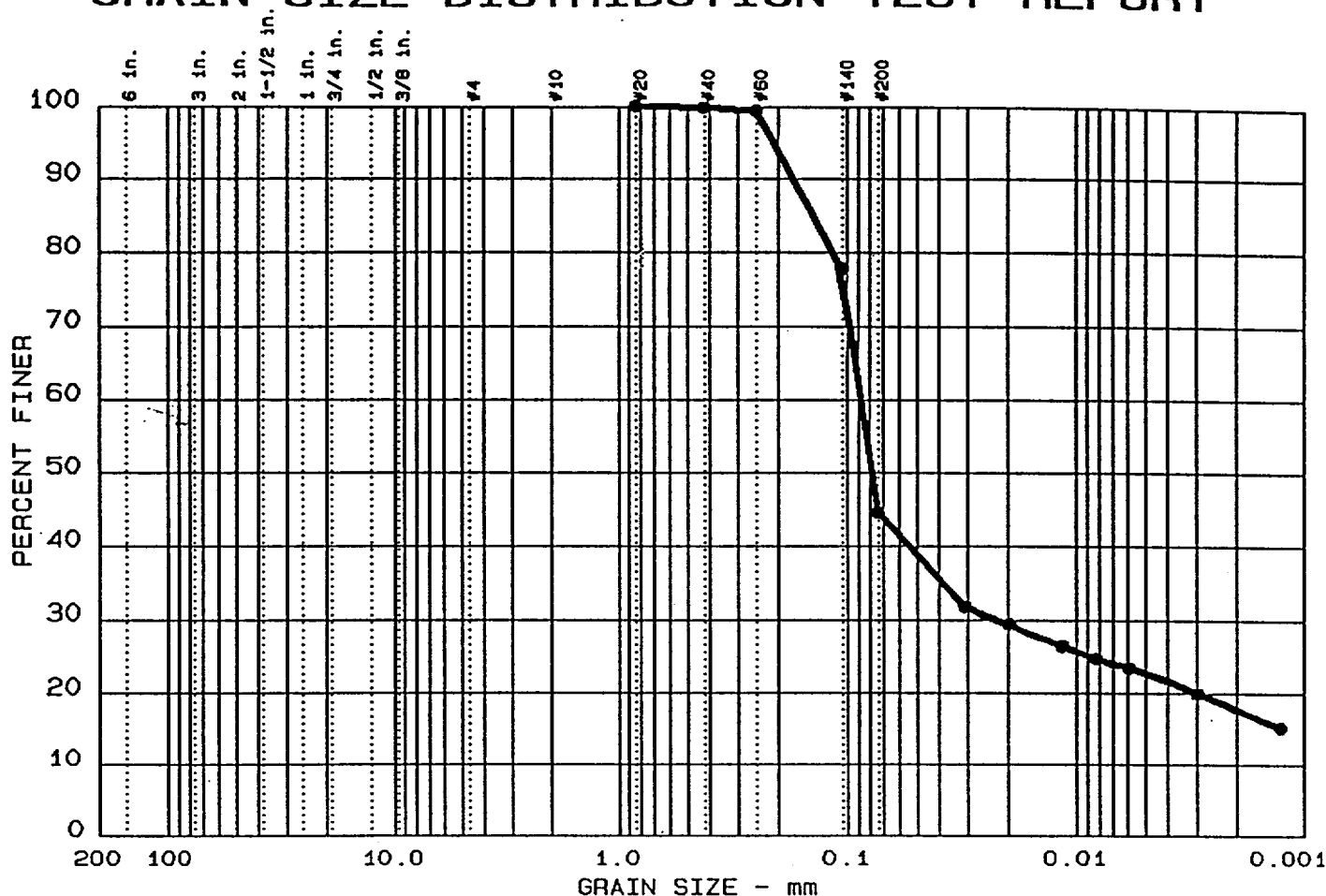
Tested by: SC + JTM

Reviewed by: HB

ASTM D 422
 &
 ASTM D 4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



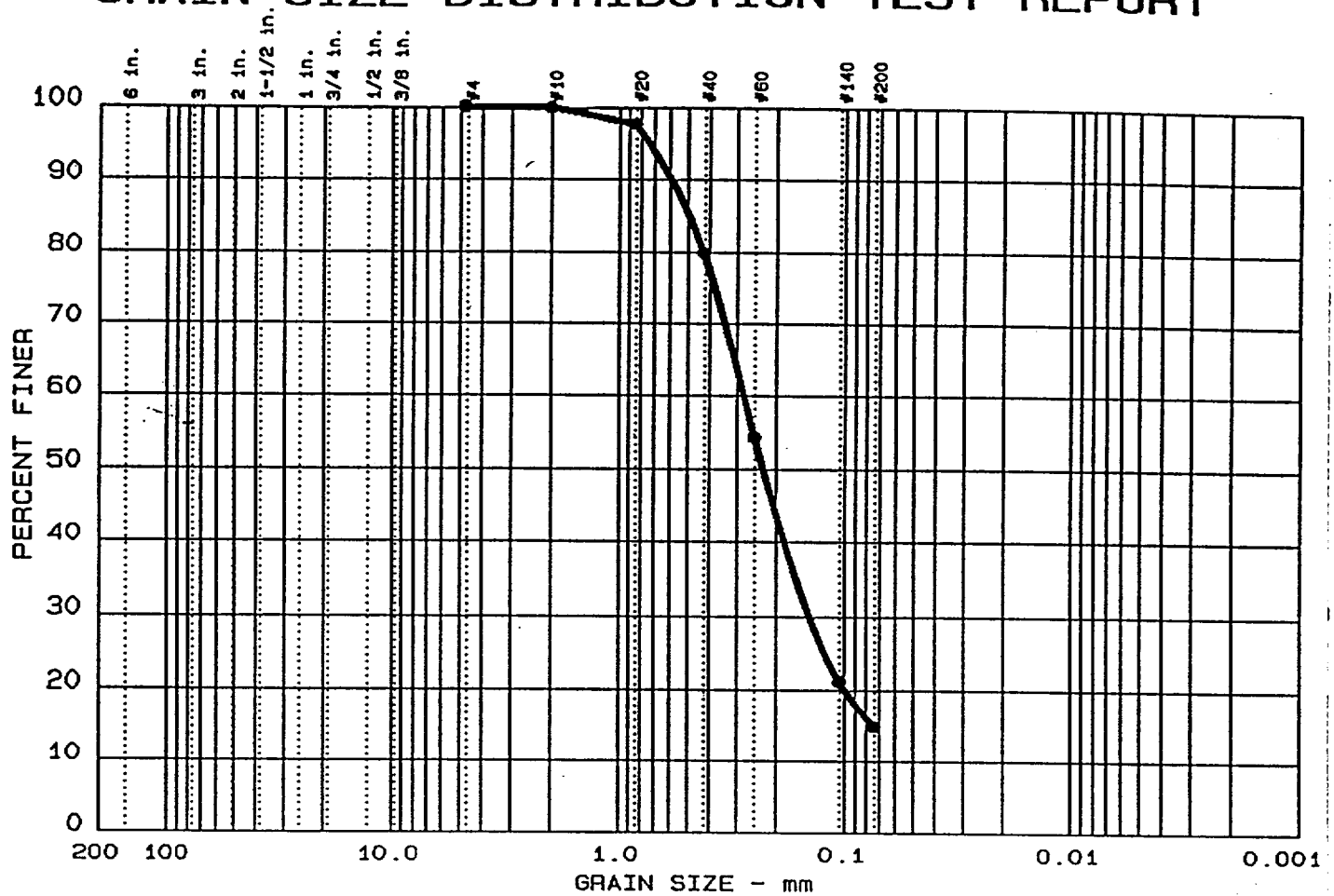
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 11	0.0	0.0	55.6	21.6	22.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.14	0.09	0.08	0.023				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown & Purple Silt Sand	SM	A-4 (0.0)

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-14 @ 27.5-29 Ft. Date: March 24, 1998	Remarks: Tested by: SC Reviewed by: HB ASTM D422
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 12	0.0	0.0	85.0	15.0	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		0.48	0.28	0.23	0.143	0.0740			

MATERIAL DESCRIPTION	USCS	AASHTO
● Red & Tan brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing ● Location: FB-6 SS-15 @ 29-30.5 Ft. Date: +	Remarks: Tested by: SC Reviewed by: HB ASTM D422
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	Figure No.

PERCENT FINER

GRAIN SIZE - mm

Grain Size (mm)	Percent Finer (%)
0.075	100
0.15	100
0.3	100
0.6	100
1.2	100
2.5	100
5.0	100
10.0	100
20.0	100
40.0	100
60.0	100
80.0	100
100.0	100
150.0	100
200.0	0

[illegible]

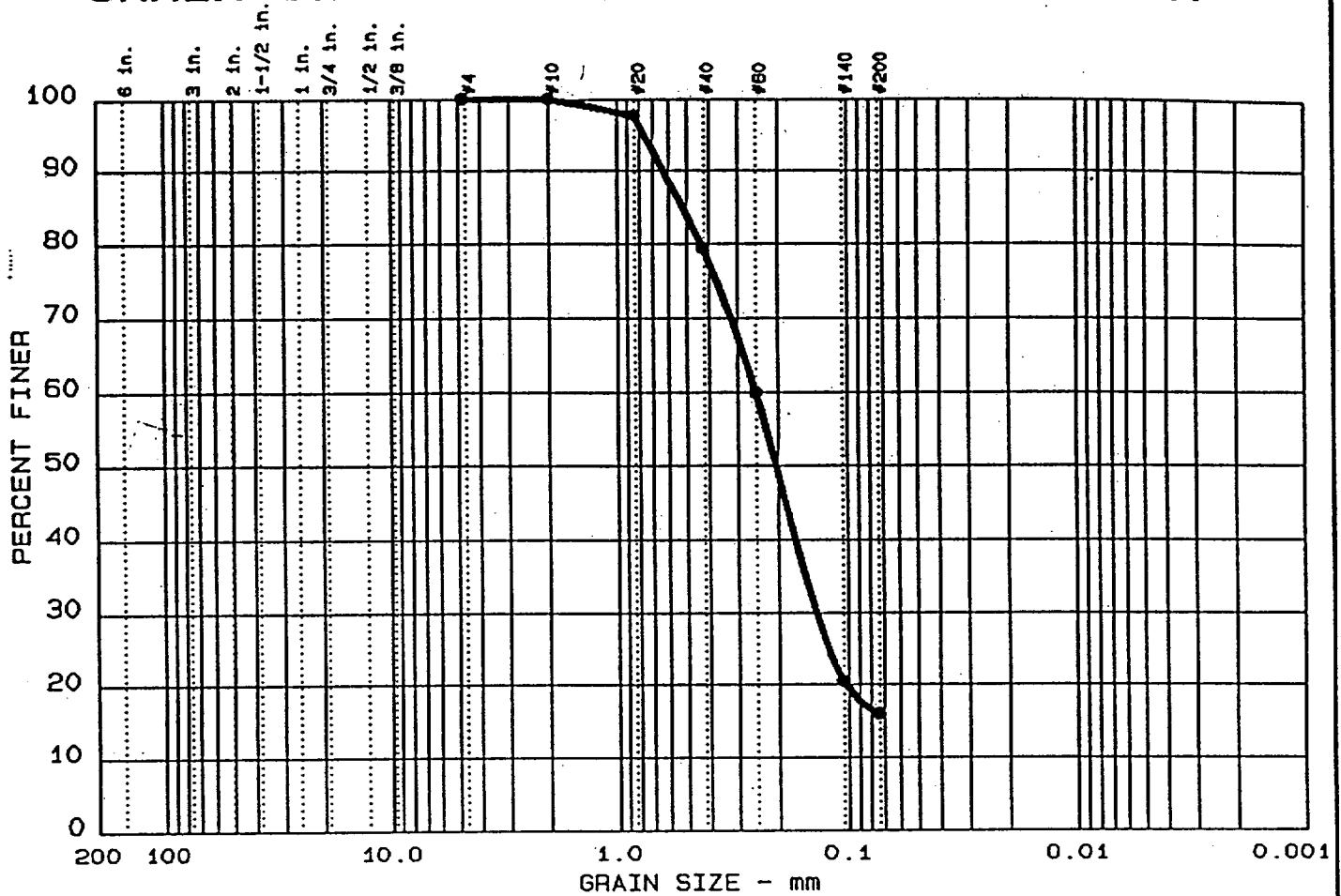
Project No.: 50161-7-0108 Task 16
Project: APSF Confirmatory Testing
Location: FB-6 SS-16 @ 30.5-32 Ft.

GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING, INC.

Remarks:
Tested by: SCAT/Im
Reviewed by: H0
ASTM D422

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 14	0.0	0.0	84.0	16.0	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.51	0.25	0.20	0.137				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-17 @ 32-33.5 Ft.

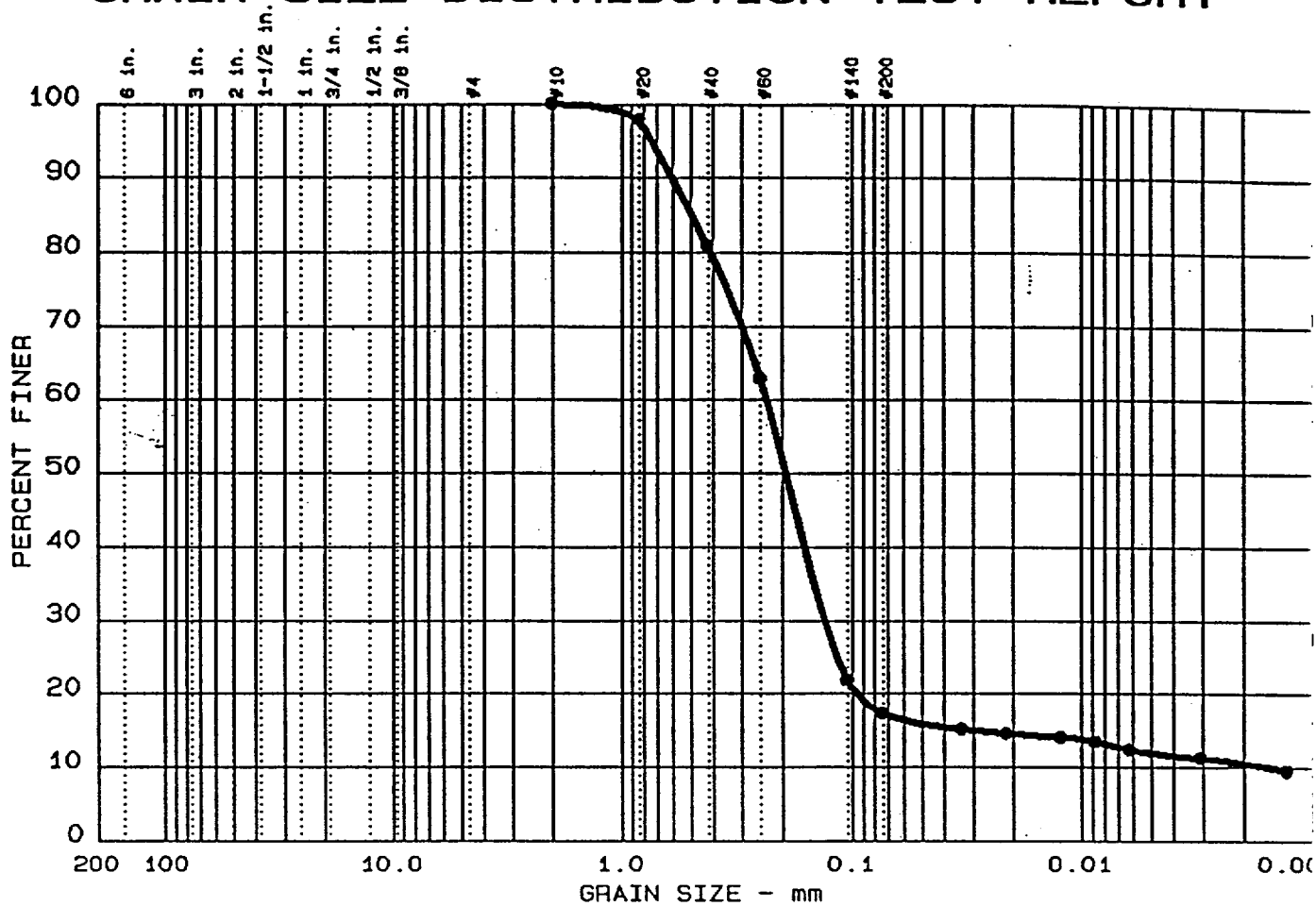
Date: March 24, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SC+Jm*
 Reviewed by: *H*
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



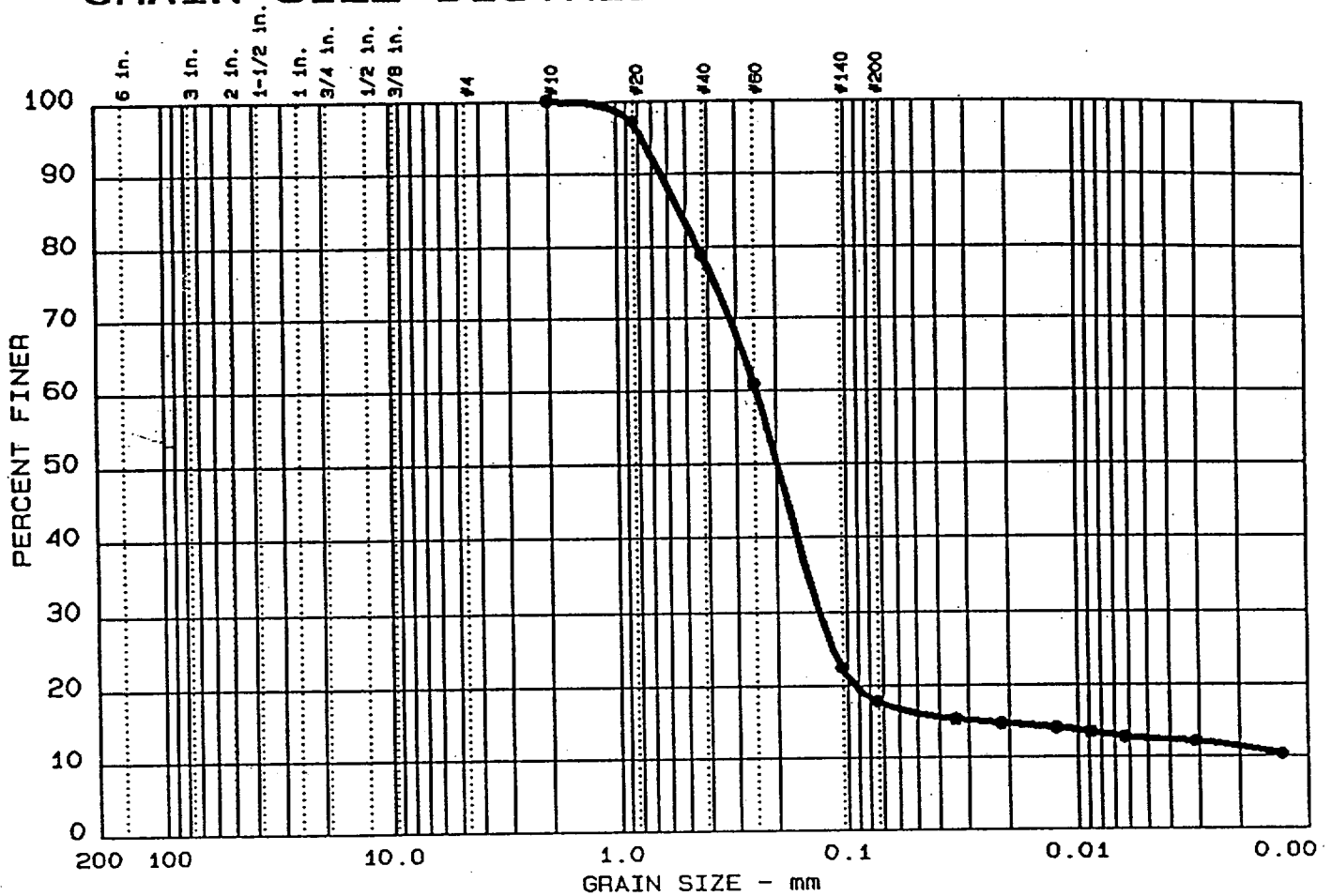
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 16	0.0	0.0	82.6	5.5	11.9

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.49	0.23	0.19	0.132	0.0265	0.0015	48.31	153.8

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown & Tan Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-18 @ 33.5-35 Ft. Date: March 24, 1998	Remarks: Tested by: SC Reviewed by: HB ASTM D422 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 13	0.0	0.0	82.2	5.3	12.5

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 35	12	0.52	0.24	0.20	0.131	0.0265			

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown & Tan Clayey Sand	SC	A-2-6 (0.1)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-19 @ 35-36.5 Ft.

Date: March 27, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC*

Reviewed by: *HT*

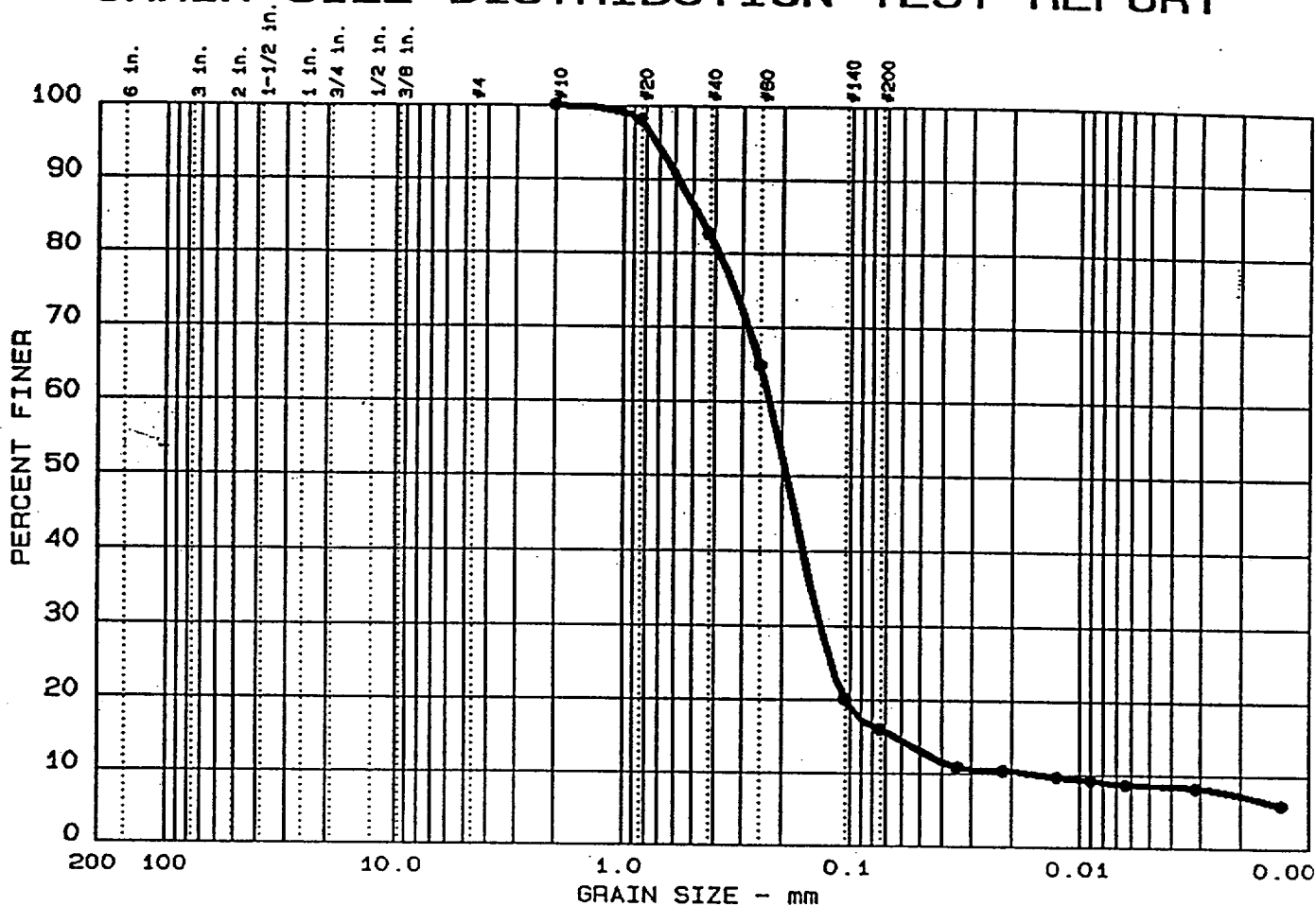
ASTM D422

&

ASTM D4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT

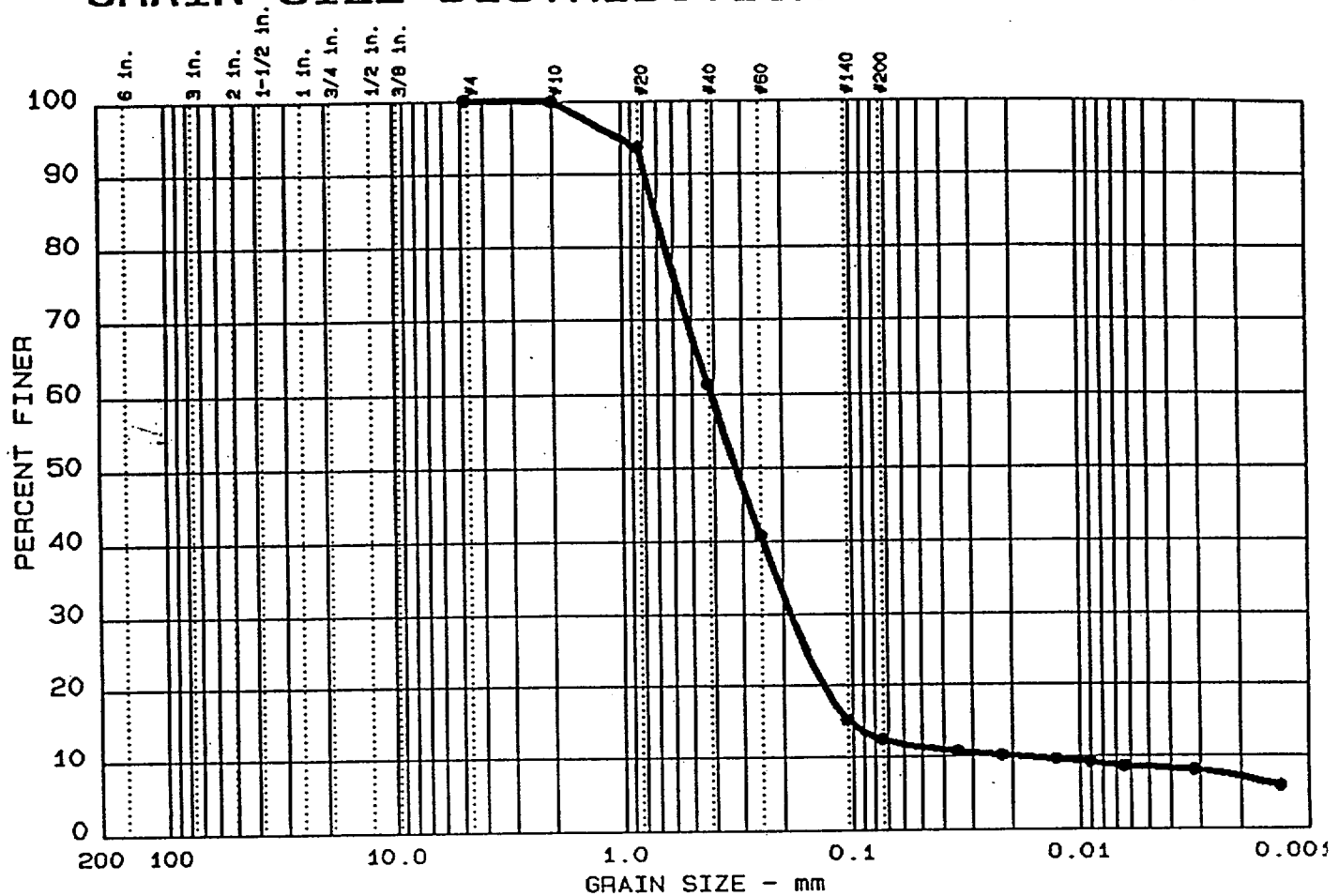


Grain size distribution test report graph. The Y-axis is labeled "PERCENT FINER" and ranges from 0 to 100. The X-axis is labeled "GRAIN SIZE - mm" and is logarithmic, with major ticks at 200, 100, 10.0, 1.0, 0.1, 0.01, and 0.00. The graph shows a curve representing the grain size distribution. The curve starts at 100% finer for 200 mm, remains at 100% until approximately 1.0 mm, then drops sharply, passing through approximately 75% finer at 0.425 mm, 50% finer at 0.25 mm, and 20% finer at 0.075 mm. The curve levels off at approximately 10% finer for 0.075 mm and below.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	98
5	95
2.5	75
1.0	50
0.425	20
0.25	15
0.15	13
0.075	10
0.0425	10
0.025	10
0.015	10
0.0075	10
0.00425	10
0.0025	10
0.0015	10
0.00075	10

<p>Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing ● Location: FB-6 SS-21 @ 38-39.5 Ft.</p> <p>Date: March 24, 1998</p>	<p>Remarks:</p> <p>Tested by: SC</p> <p>Reviewed by: HB</p> <p>ASTM D422</p>
<p>GRAIN SIZE DISTRIBUTION TEST REPORT</p> <p>LAW ENGINEERING, INC.</p>	
<p>Figure No.</p>	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
19	0.0	0.0	87.6	4.1	8.3

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.71	0.41	0.32	0.185	0.1030	0.0173	4.88	23.6

MATERIAL DESCRIPTION	USCS	AASHTO
Red Silty Sand	SM	A-2-4 (0.3)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 Location: FB-6 SS-22 @ 39.5-40 Ft.

Date: March 24, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

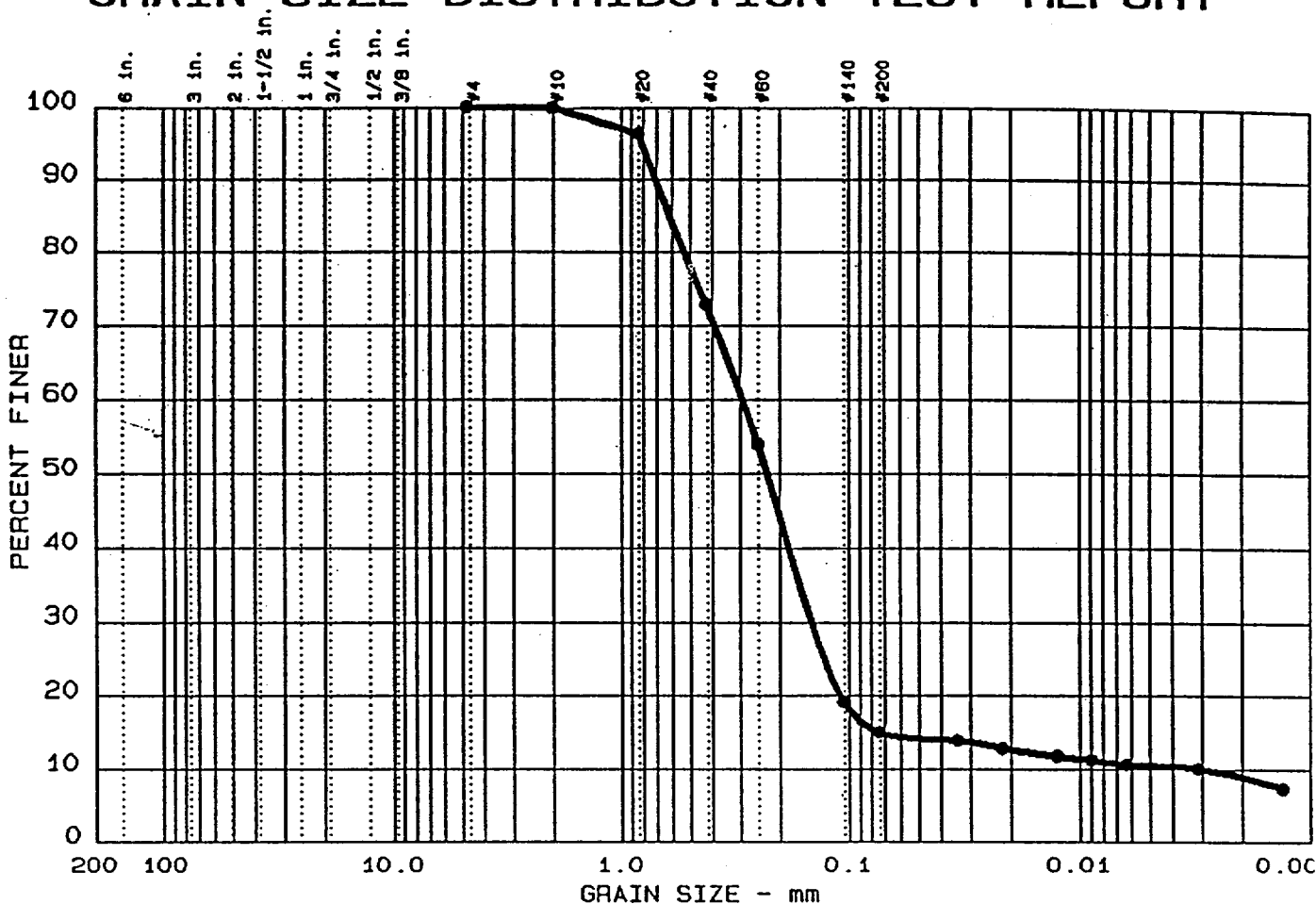
Tested by: *SCG/STW*

Reviewed by: *LB*

ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 20	0.0	0.0	85.0	4.5	10.5

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		0.61	0.29	0.23	0.146	0.0731	0.0027	26.55	106.2

MATERIAL DESCRIPTION	USCS	AASHTO
● Red Brown & Tan Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 ● Location: FB-6 SS-23 @ 41-43.5 Ft.

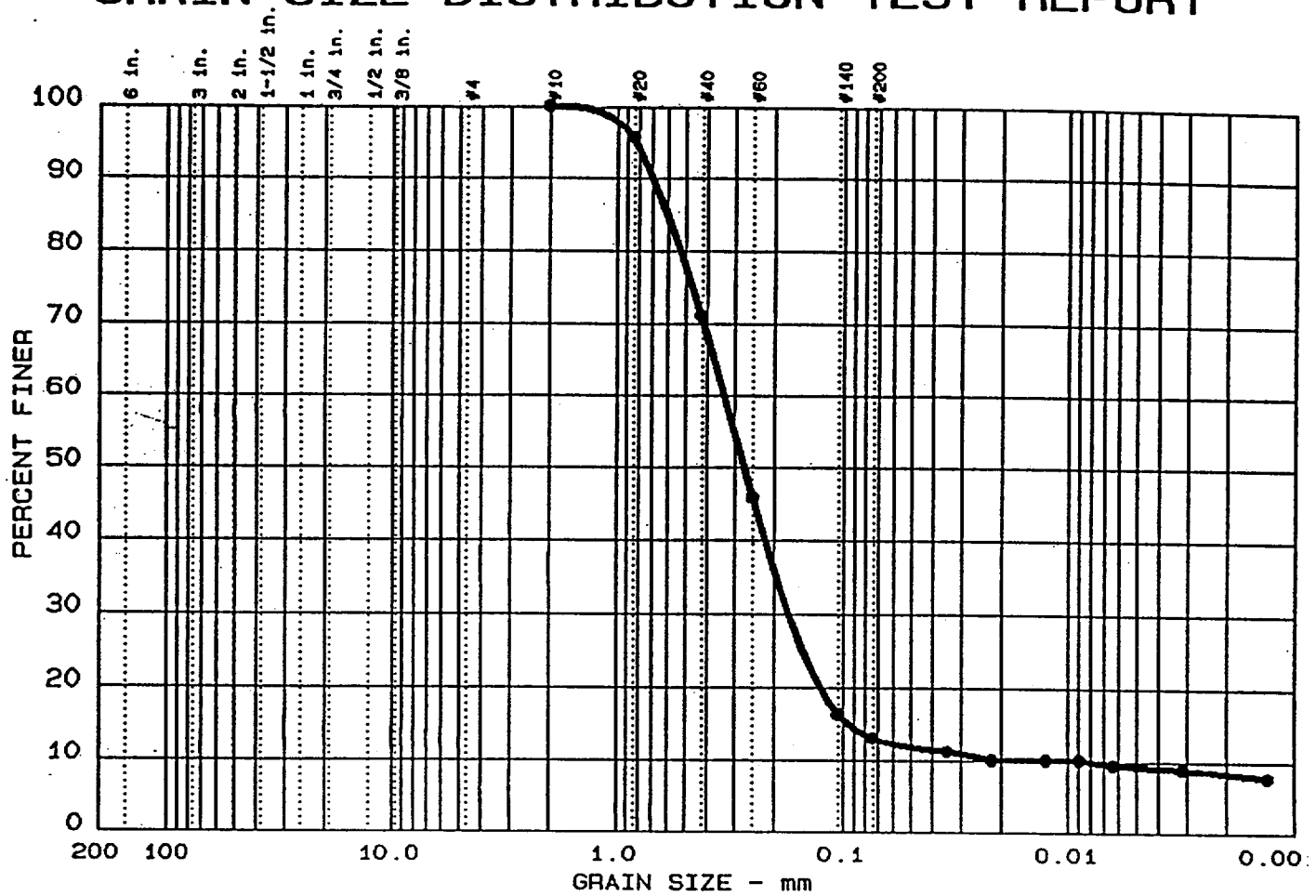
Date: March 24, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SGT/STW*
 Reviewed by: *HS*
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 15	0.0	0.0	86.9	3.9	9.2

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.60	0.33	0.27	0.172	0.0934	0.0080	11.14	42.0

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown & Tan Silty Sand	SM	A-2-4 (0.2)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-24 @ 42.5-44 Ft.

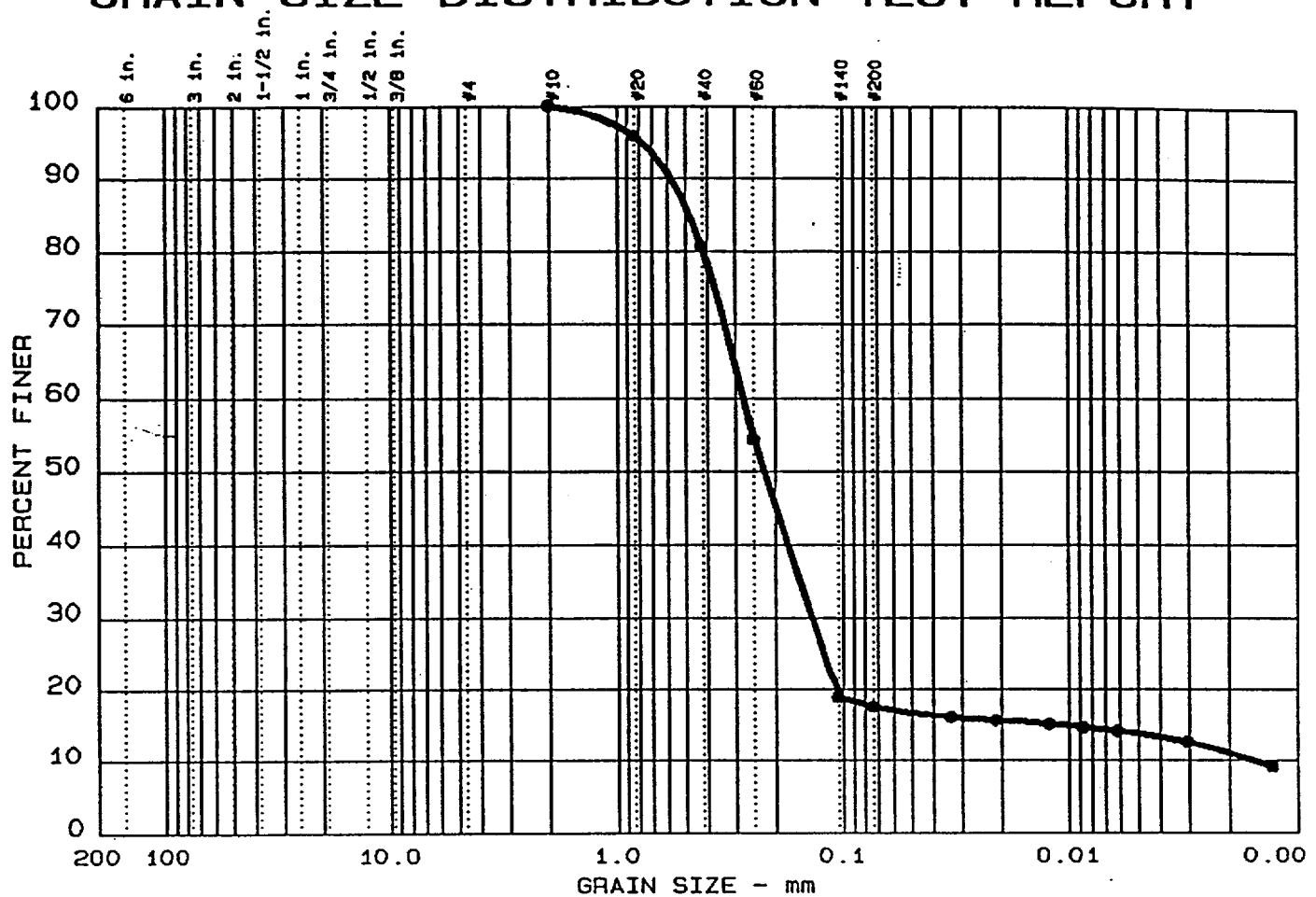
Date: March 24, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: *HB*
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 9	0.0	0.0	82.4	3.9	13.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		0.47	0.28	0.22	0.138	0.0108	0.0016	43.50	174.4

MATERIAL DESCRIPTION	USCS	AASHTO
● Red Brown & Tan Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 ● Location: FB-6 SS-25 @ 44-45.5 Ft.

Date: March 27, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC JWM
 Reviewed by: HJ
 ASTM D422

Figure No.

Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve indicates a well-graded soil.

Grain Size (mm)	Percent Finer (%)
2.0	98
0.85	95
0.425	80
0.25	45
0.075	15
0.0425	12
0.025	11
0.015	10
0.0075	9
0.00425	8

[illegible]

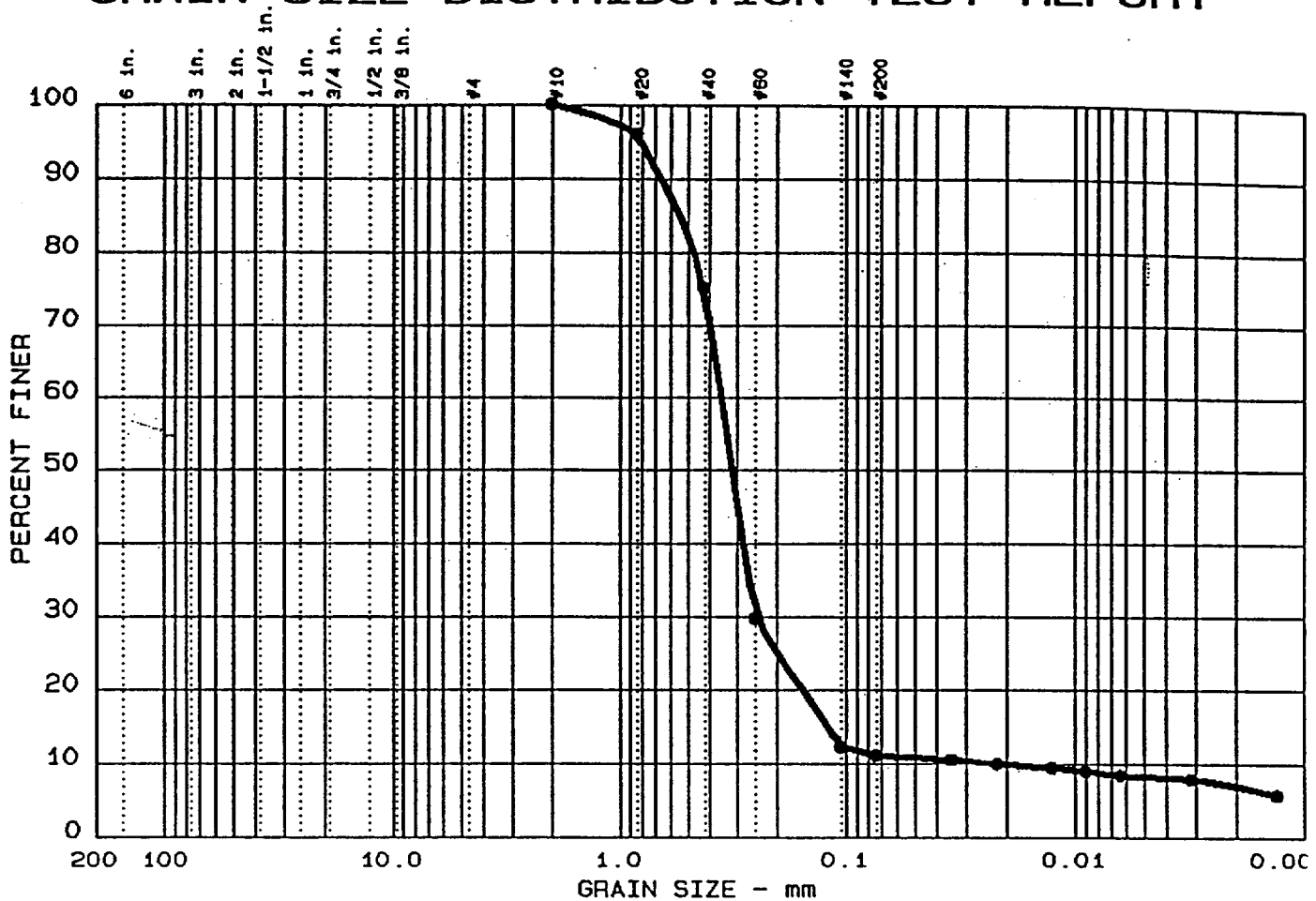
Project No.: 50161-7-0108 Task 16
Project: APSF Confirmatory Testing
● Location: FB-6 SS-26 @ 45.5-47 Ft.

Date: April 2, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● B	0.0	0.0	88.9	2.9	8.2

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		0.54	0.35	0.31	0.251	0.1201	0.0195	9.15	18.1

MATERIAL DESCRIPTION	USCS	AASHTO
● Red Brown & Tan Poorly Graded Sand with Silt	SP-SM	A-2-4 (0.4)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 ● Location: FB-6 SS-27 @ 47-48.5 Ft.

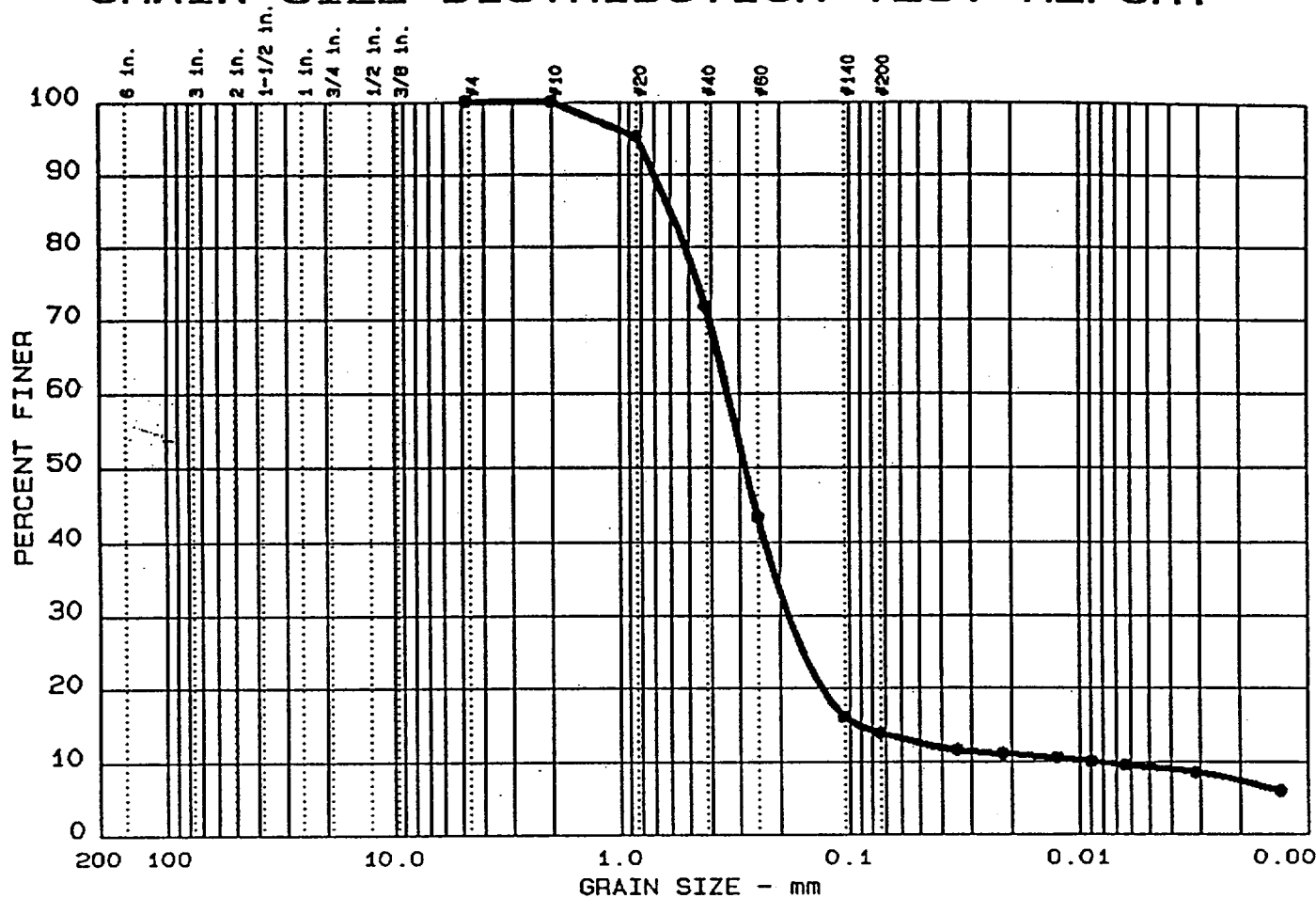
Date: March 27, 1998

Remarks:
 Tested by: SC+JTM
 Reviewed by: H
 ASTM D422

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 10	0.0	0.0	86.1	4.6	9.3

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.59	0.34	0.28	0.185	0.0926	0.0079	12.85	42.8

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown & Tan Silty Sand	SM	A-2-4 (0.1)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-28 @ 48.5-50 Ft.

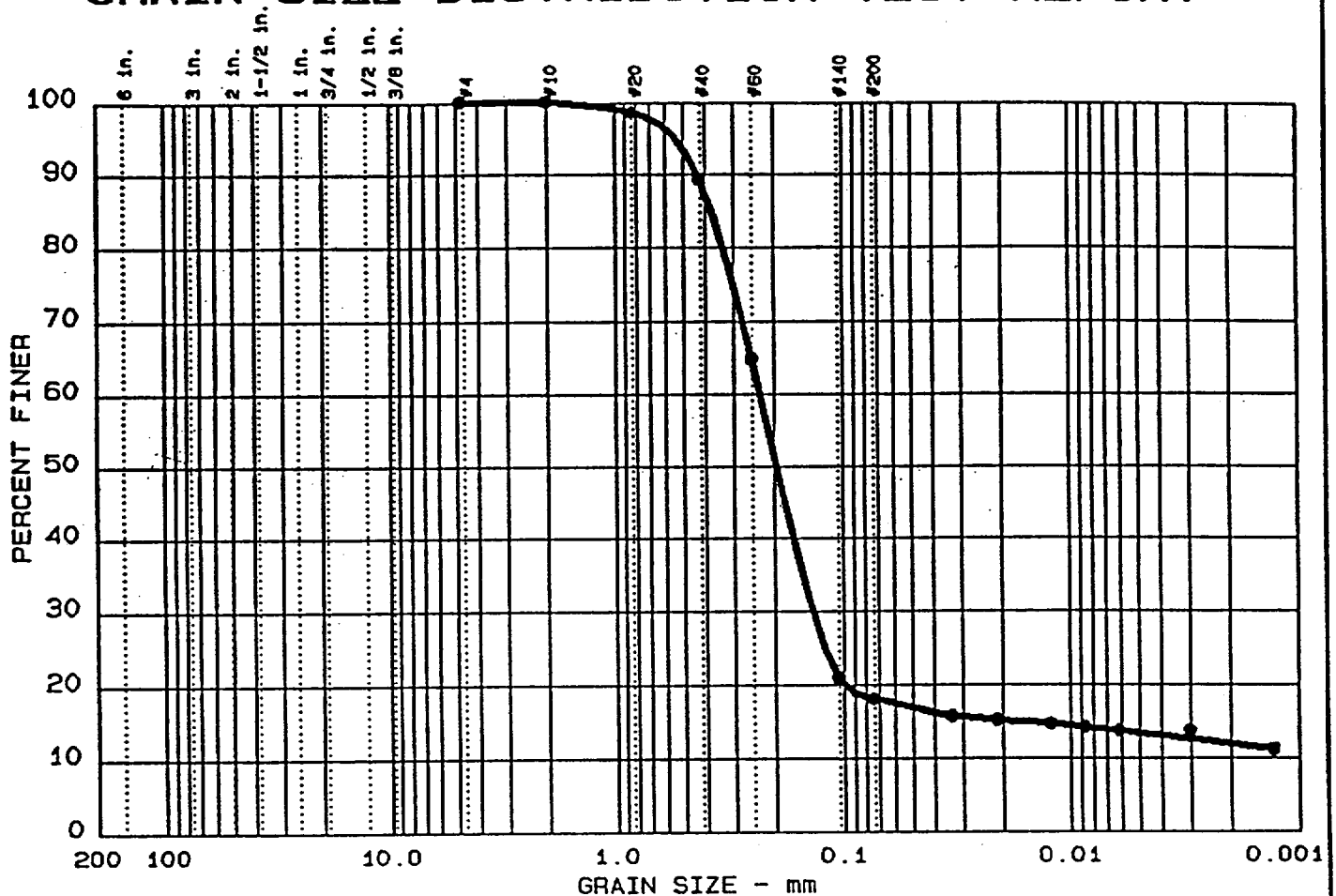
Date: March 27, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SC + JDM*
 Reviewed by: *H*
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 2	0.0	0.0	81.9	4.7	13.4

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.37	0.23	0.20	0.136	0.0149			

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-5 SS-29 @ 50-51.5 Ft.

Date: April 2, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC
 Reviewed by: *[Signature]*
 ASTM D422

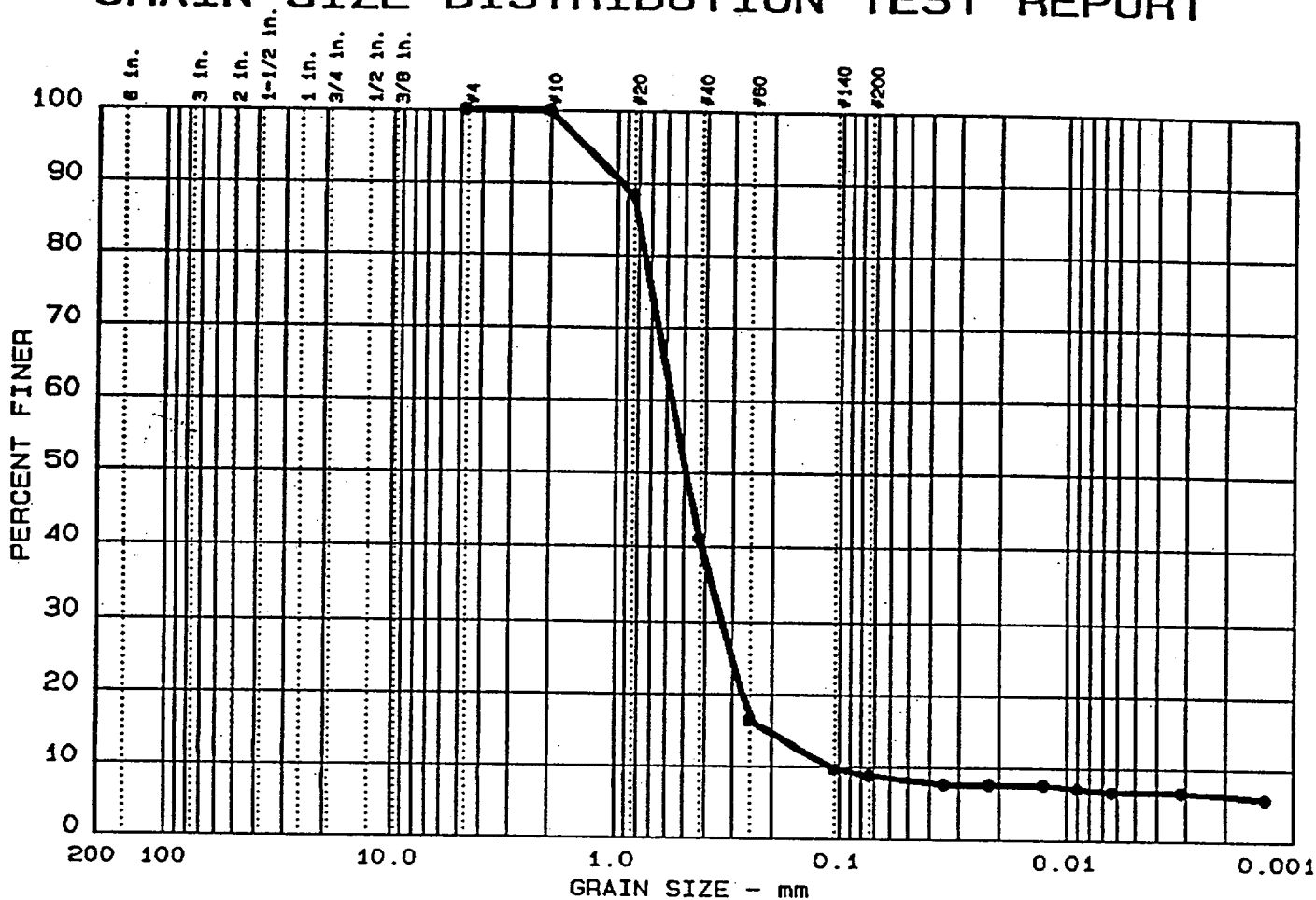
Figure No.

Grain size distribution plot for Test Report No. 1. The graph shows Percent Finer (0-100) versus Grain Size in mm (200 to 0.001). The curve starts at 100% finer for 200 mm and drops sharply between 1.0 mm and 0.075 mm, leveling off at approximately 10% finer for sizes below 0.075 mm. Sieve sizes are marked at the top: 6 in., 3 in., 2 in., 1-1/2 in., 1 in., 3/4 in., 1/2 in., 3/8 in., #4, #10, #20, #40, #60, #140, #200.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
7.5	100
5	100
4	100
3	100
2	100
1.5	100
1.0	98
0.75	95
0.6	85
0.425	55
0.3	40
0.25	30
0.2	25
0.15	20
0.106	17
0.075	15
0.06	14
0.0475	12
0.0375	11
0.03	11
0.025	11
0.02	11
0.015	10
0.0125	10
0.0106	10
0.0085	10
0.0075	10
0.006	9
0.00475	8
0.00375	7
0.003	7
0.0025	7
0.002	7
0.0015	7
0.00106	7

Remarks:
Tested by: SC
Reviewed by: HB
ASTM D422

GRAIN SIZE DISTRIBUTION TEST REPORT



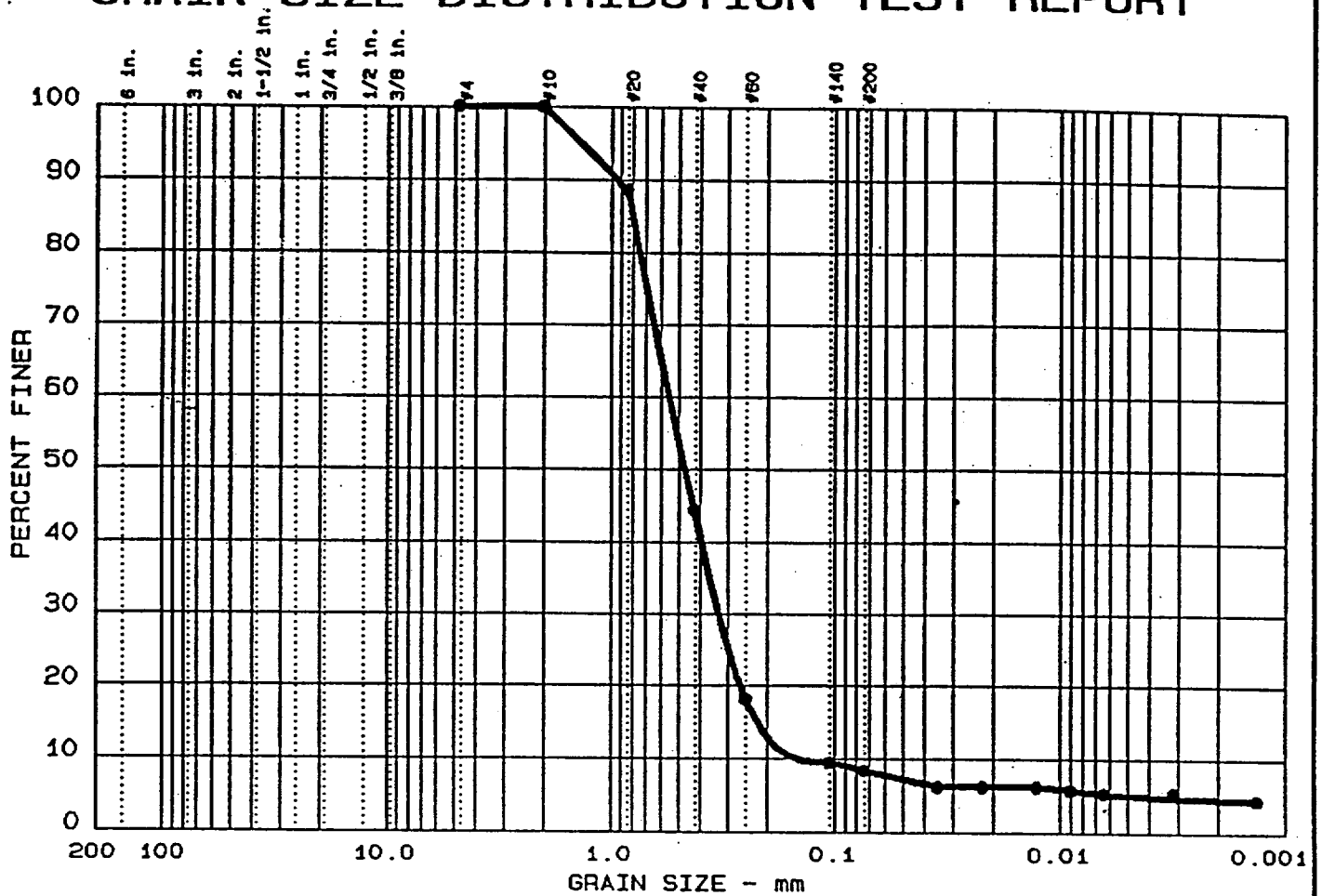
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 4	0.0	0.0	91.2	2.1	6.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.80	0.56	0.48	0.333	0.2051	0.1089	1.81	5.1

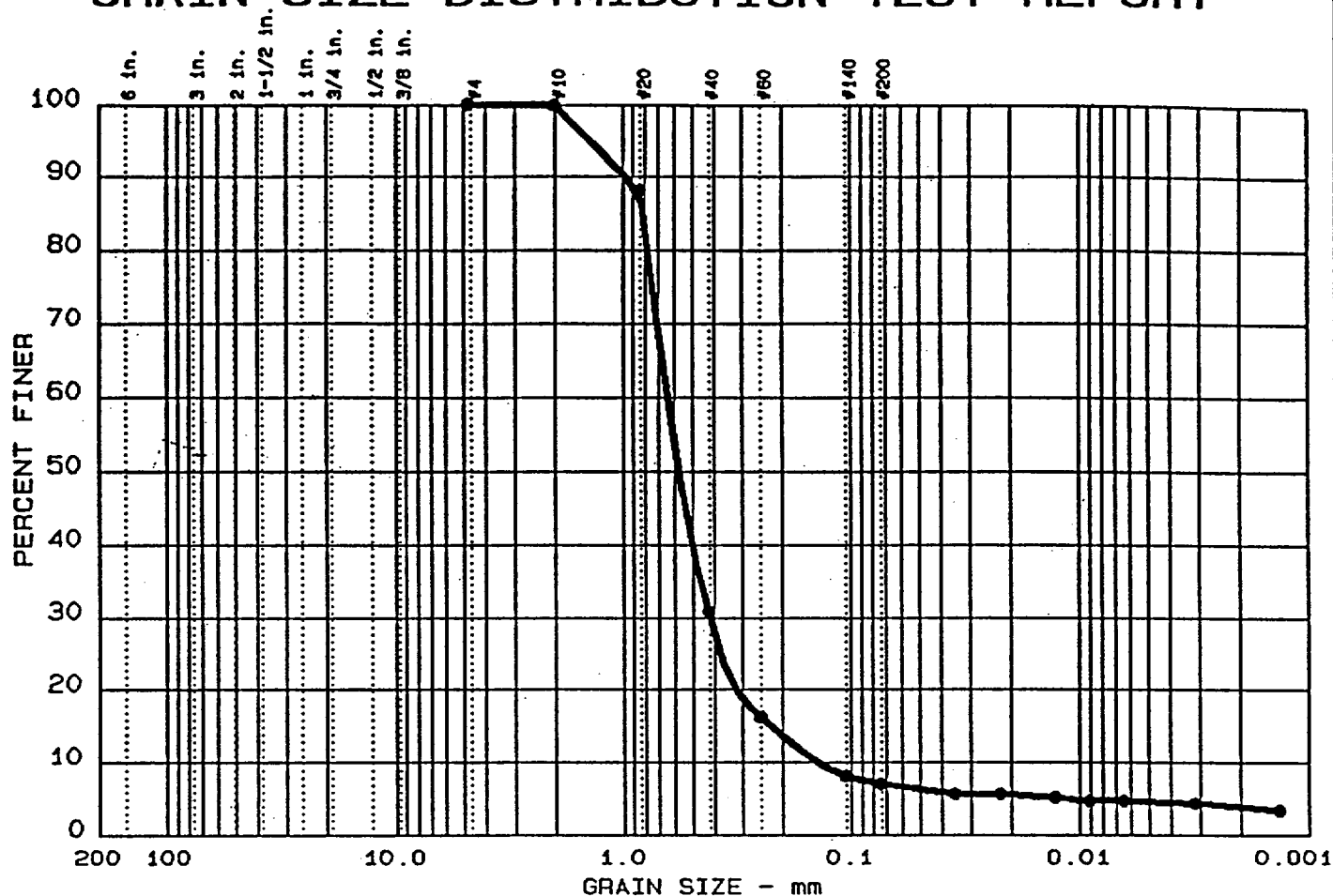
MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-31 @ 53-54.5 Ft. Date: April 2, 1998	Remarks: Tested by: <i>SC</i> Reviewed by: <i>HB</i> ASTM D422
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 6	0.0	0.0	92.9	2.5	4.6

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.81	0.64	0.57	0.414	0.2226	0.1388	1.95	4.6

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

Project No.: 50161-7-010B Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-33 @ 56-57.5 Ft.

Date: April 2, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HJ
 ASTM D422

Figure No.

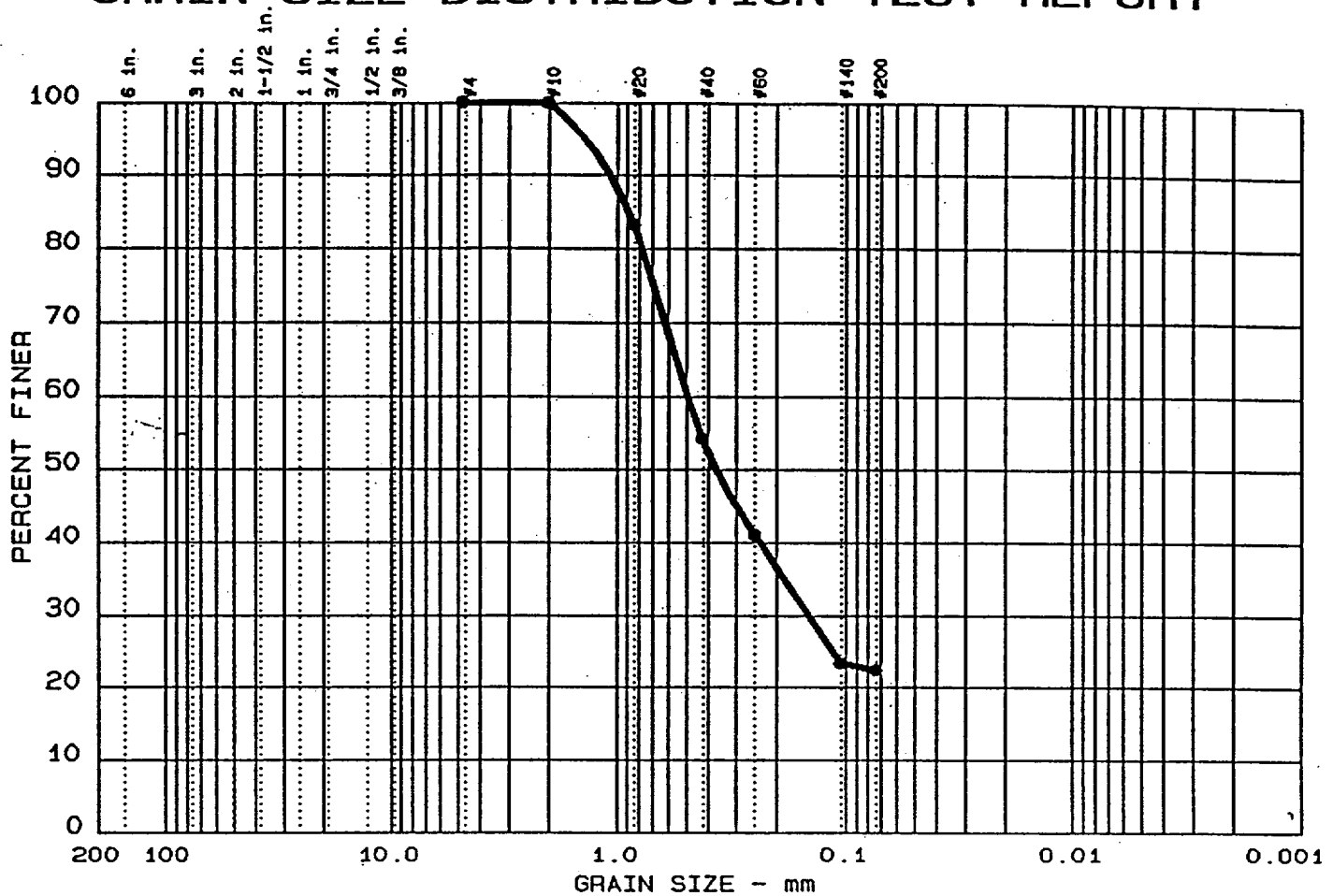
Grain size distribution curve for Test No. 100-1. The graph plots Percent Finer (0-100) against Grain Size in mm (200 to 0.0075). The curve shows a sharp drop between 1.0 mm and 0.425 mm, with 100% finer at 1.0 mm and approximately 8% finer at 0.075 mm.

Grain Size (mm)	Percent Finer (%)
2.0	100
1.0	100
0.75	95
0.6	90
0.425	82
0.3	23
0.25	15
0.15	10
0.075	8

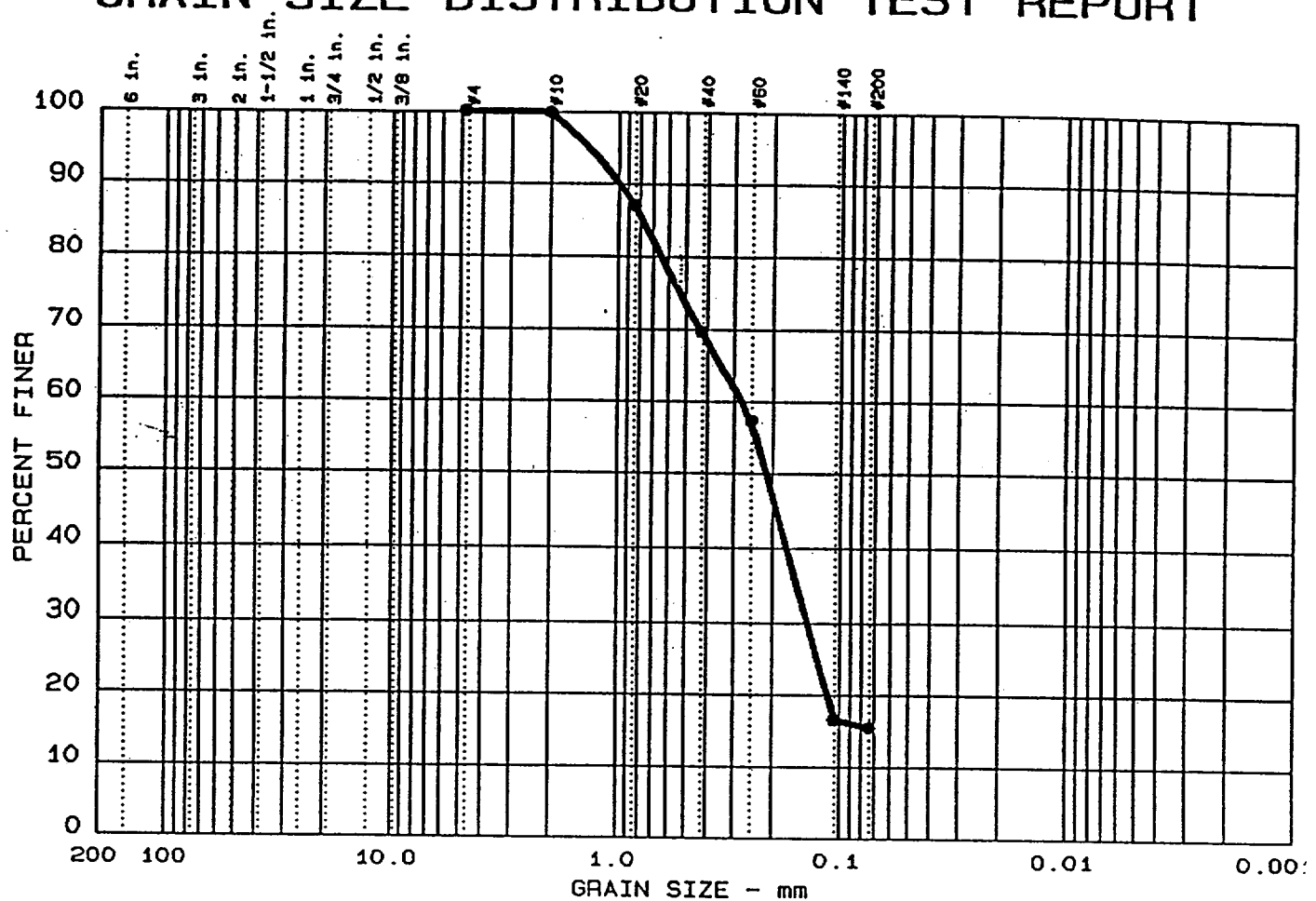
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Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing ● Location: FB-6 SS-34 @ 57.5-59 Ft.	Remarks: Tested by: <i>SC</i> Reviewed by: <i>HS</i> ASTM D 422
Date: March 29, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	Figure No.

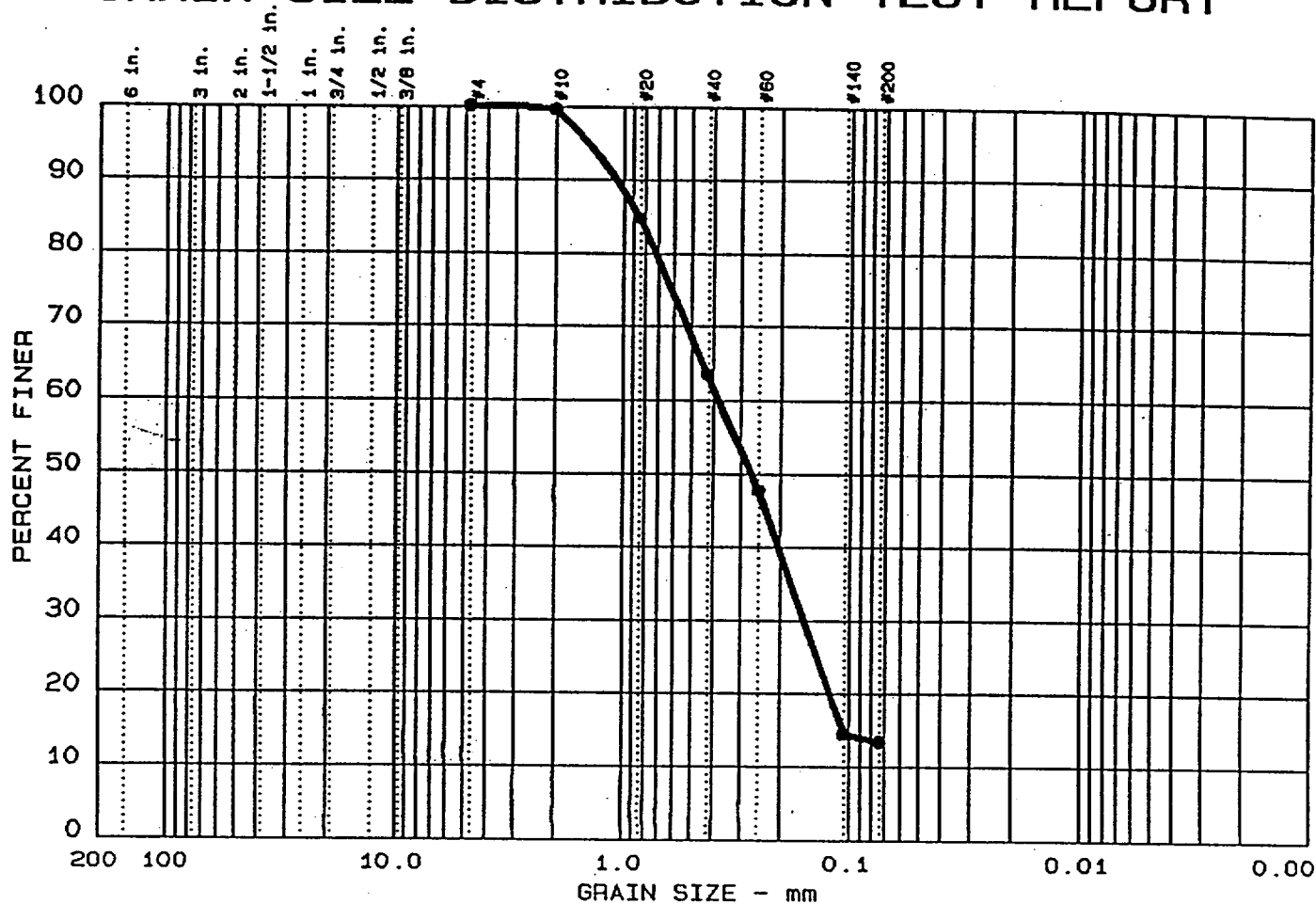
GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 9	0.0	0.0	86.6	13.4	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		0.84	0.38	0.27	0.157	0.1063			

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Silty Sand	SM	A-2-4 (0.2)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 ● Location: FB-6 SS-37 @ 62-63.5 Ft.

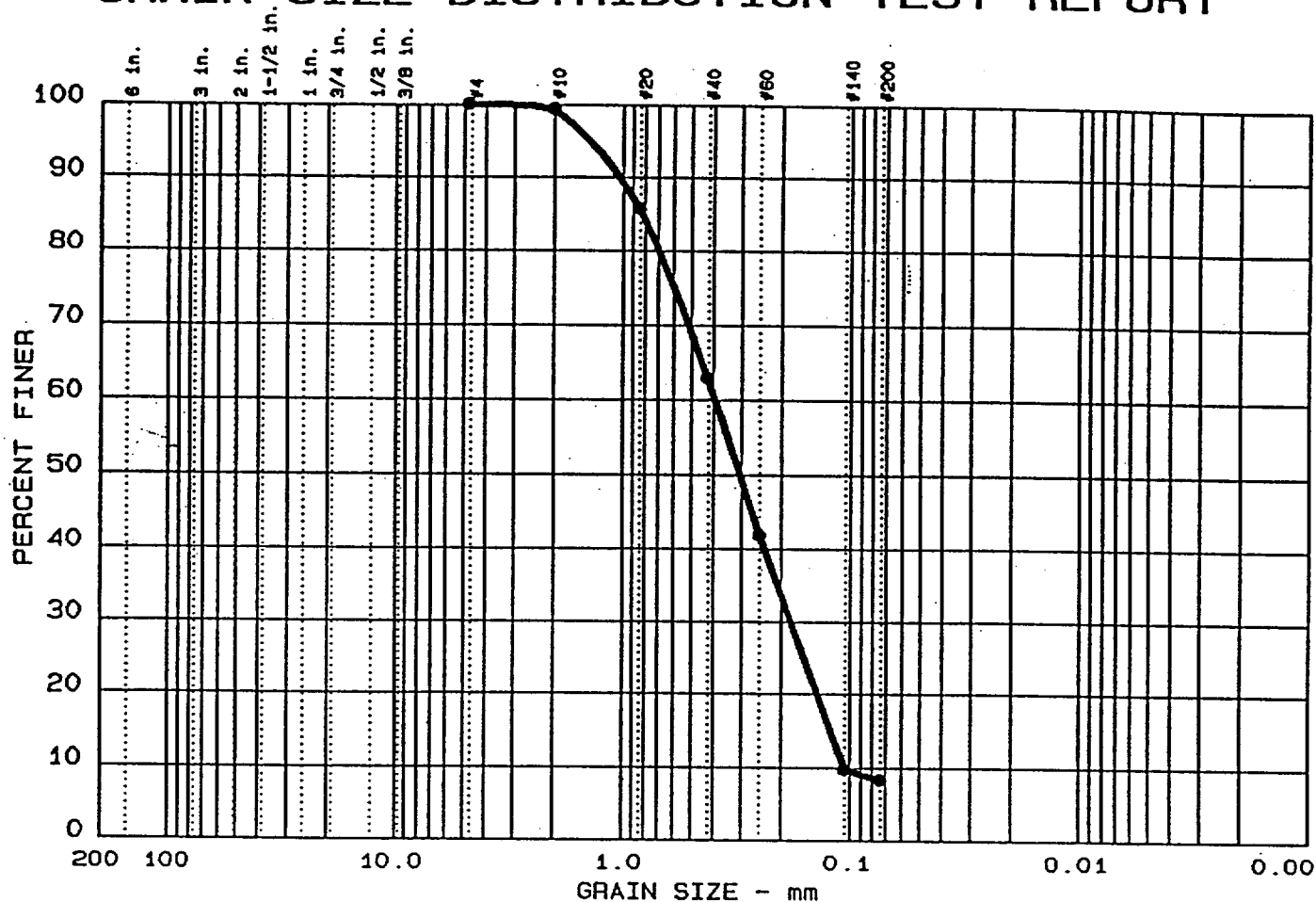
Date: March 29, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HS
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 10	0.0	0.0	91.7	8.3	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.81	0.39	0.30	0.181	0.1209	0.1053	0.80	3.7

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown Silty Sand	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-38 @ 63.5-65 Ft.

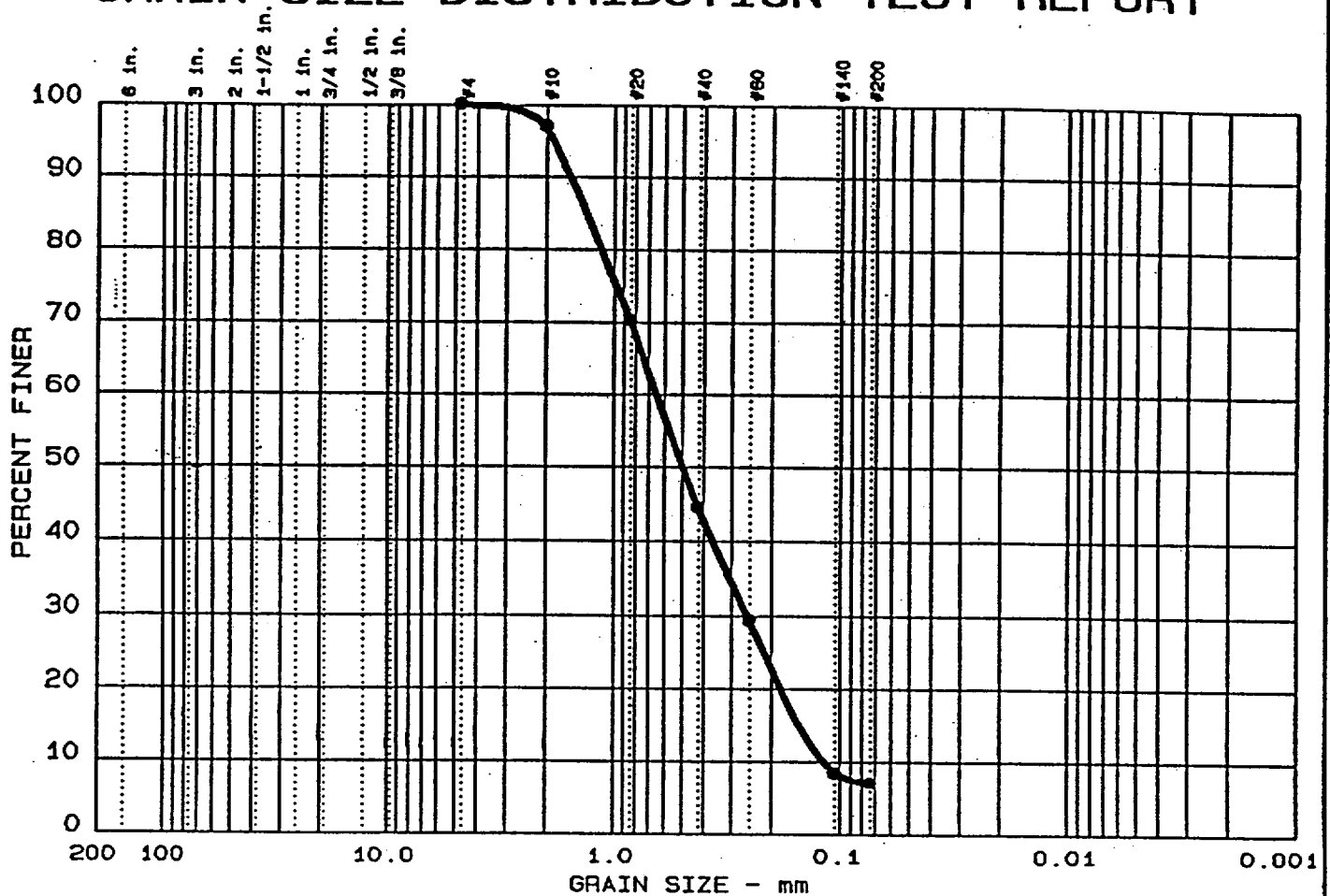
Date: March 29, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

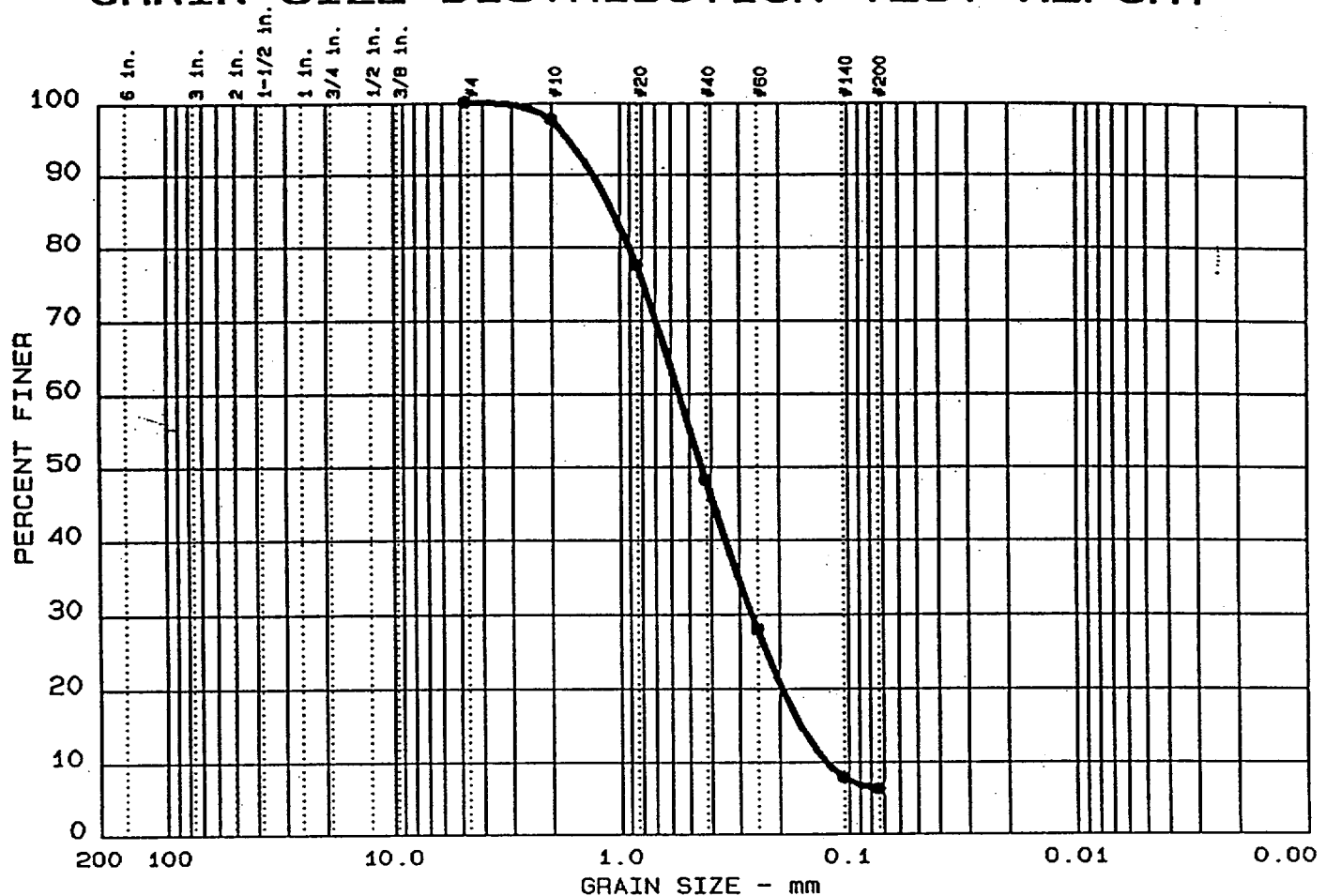
Remarks:
 Tested by: SC
 Reviewed by: HB
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve is plotted on a semi-logarithmic scale. The Y-axis represents Percent Finer (0 to 100). The X-axis represents Grain Size in mm (logarithmic scale from 200 to 0.001). The curve shows a well-graded material with a maximum grain size of approximately 4.75 mm and a minimum grain size of approximately 0.075 mm.

Grain Size (mm)	Percent Finer (%)
4.75	100
2.0	100
1.0	90
0.6	85
0.425	78
0.3	70
0.25	60
0.2	50
0.15	40
0.106	10
0.075	5

Figure No.

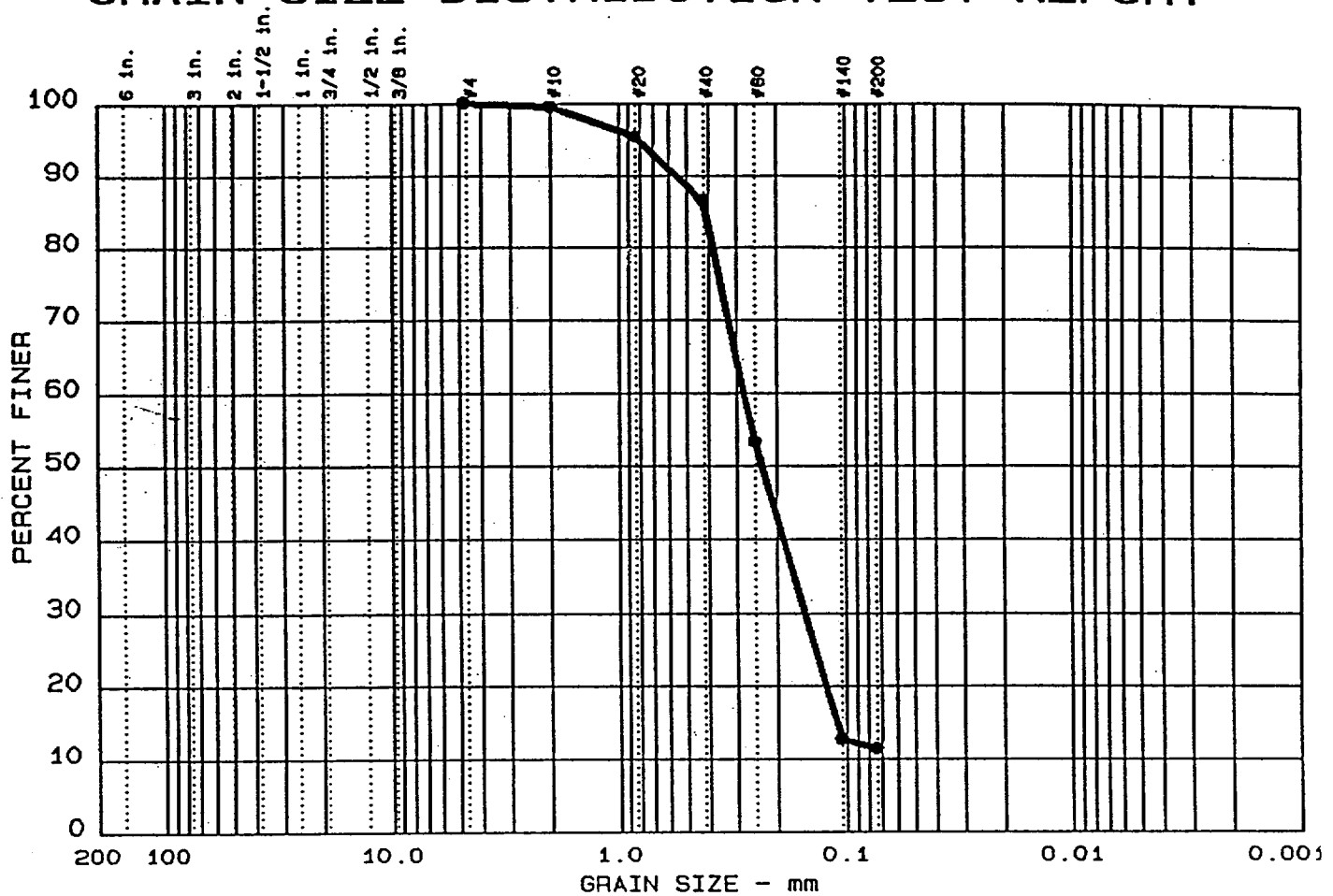
Grain size distribution curve for Test No. 1011. The graph plots Percent Finer (0-100) against Grain Size in mm (200 to 0.0075). The curve shows a sharp drop between 0.425 mm and 0.075 mm. A handwritten '1' is visible on the left side of the graph.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	98
10	95
7.5	90
60	58
0.85	12
0.75	10

[illegible]

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing ● Location: FB-6 SS-42 @ 69.5-71 Ft.	Remarks: Tested by: <i>SK</i> Reviewed by: <i>HB</i> <i>ASTM D 422</i>
Date: March 29, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 14	0.0	0.0	88.5	11.5	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.41	0.28	0.23	0.152	0.1099			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-2-4 (0.4)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-43 @ 71-72.5 Ft.

Date: March 29, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
 LAW ENGINEERING, INC.

Remarks:

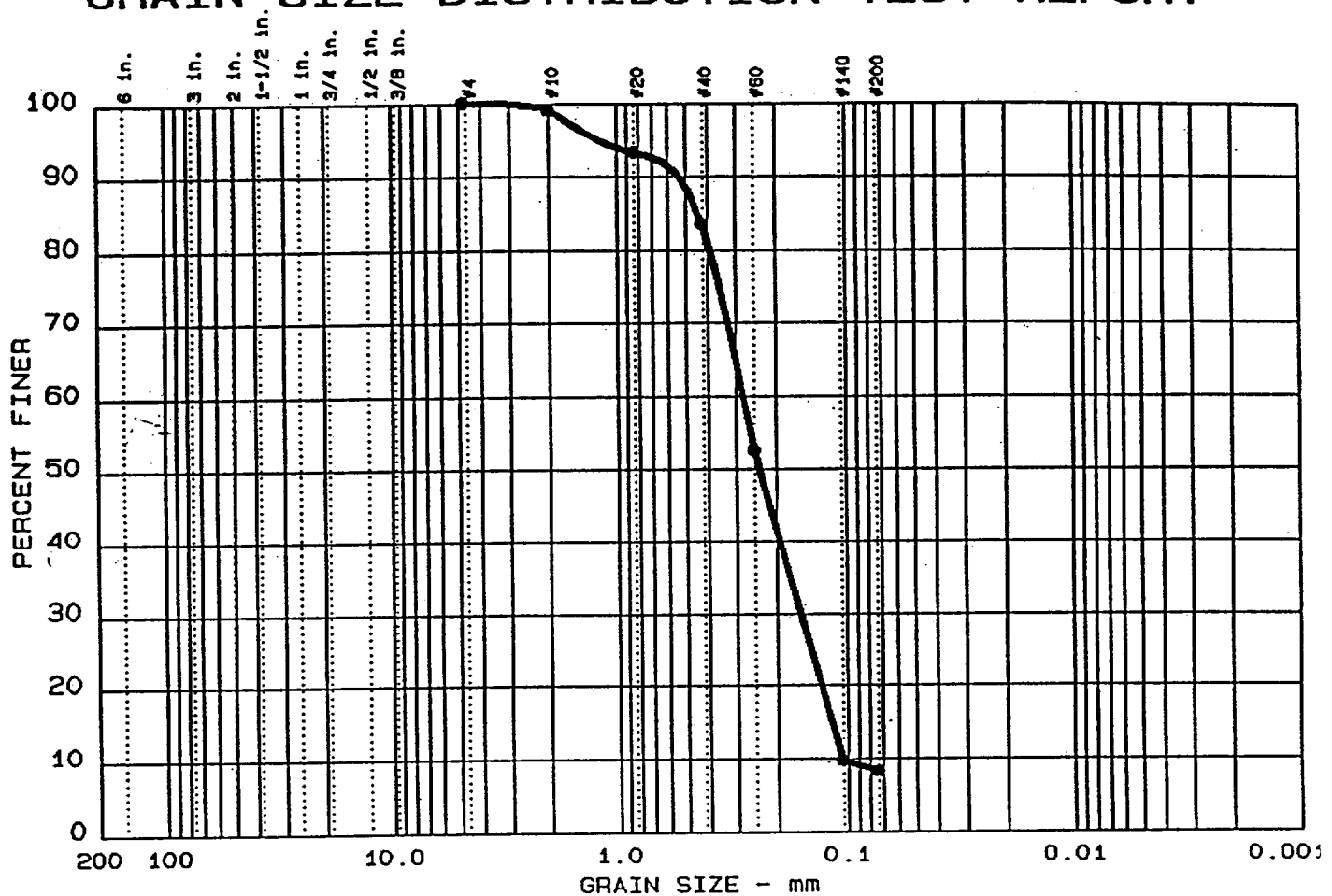
Tested by: SC

Reviewed by: HB

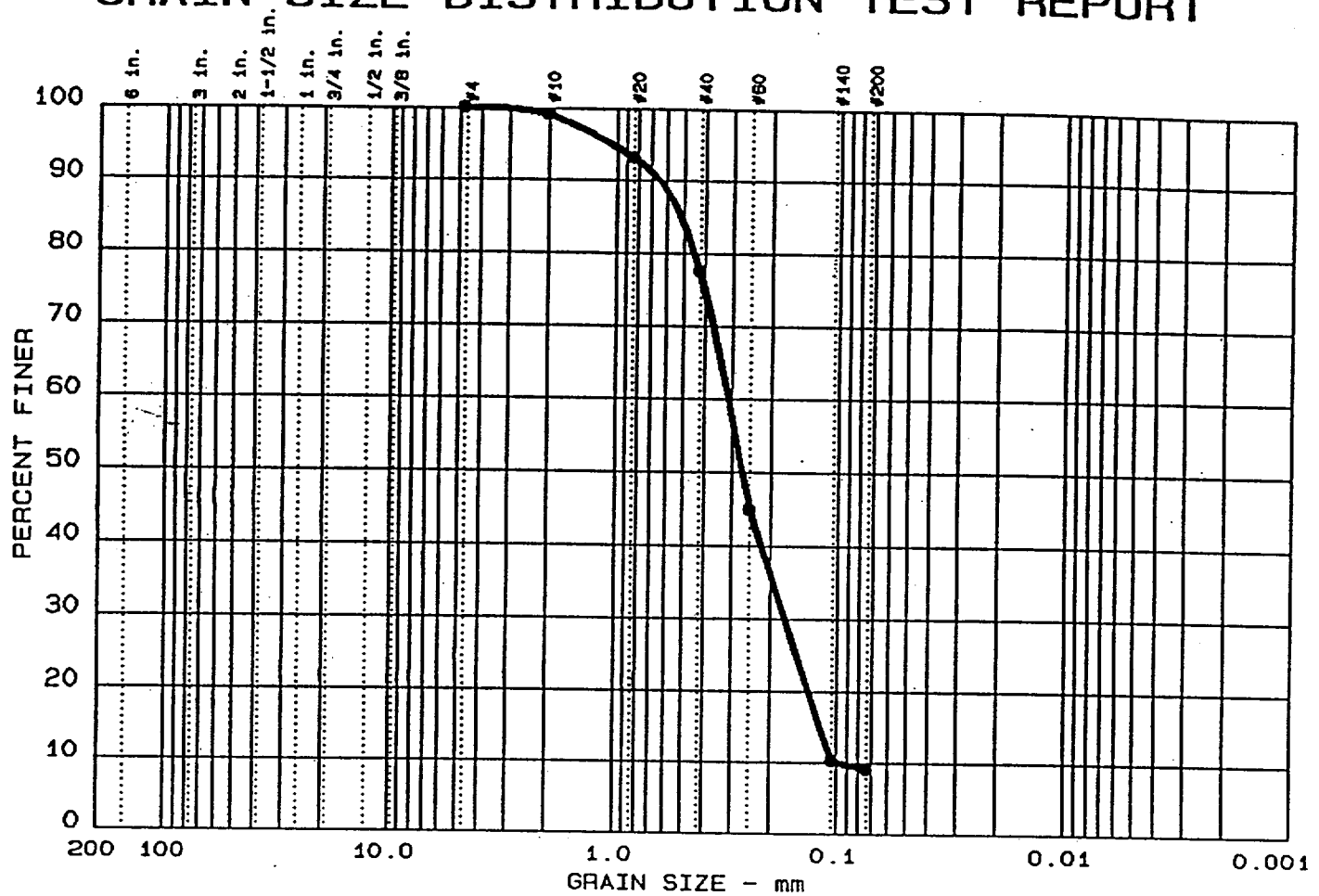
ASTM D 422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 16	0.0	0.0	90.9	9.1	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.51	0.31	0.27	0.172	0.1180	0.0927	1.02	3.3

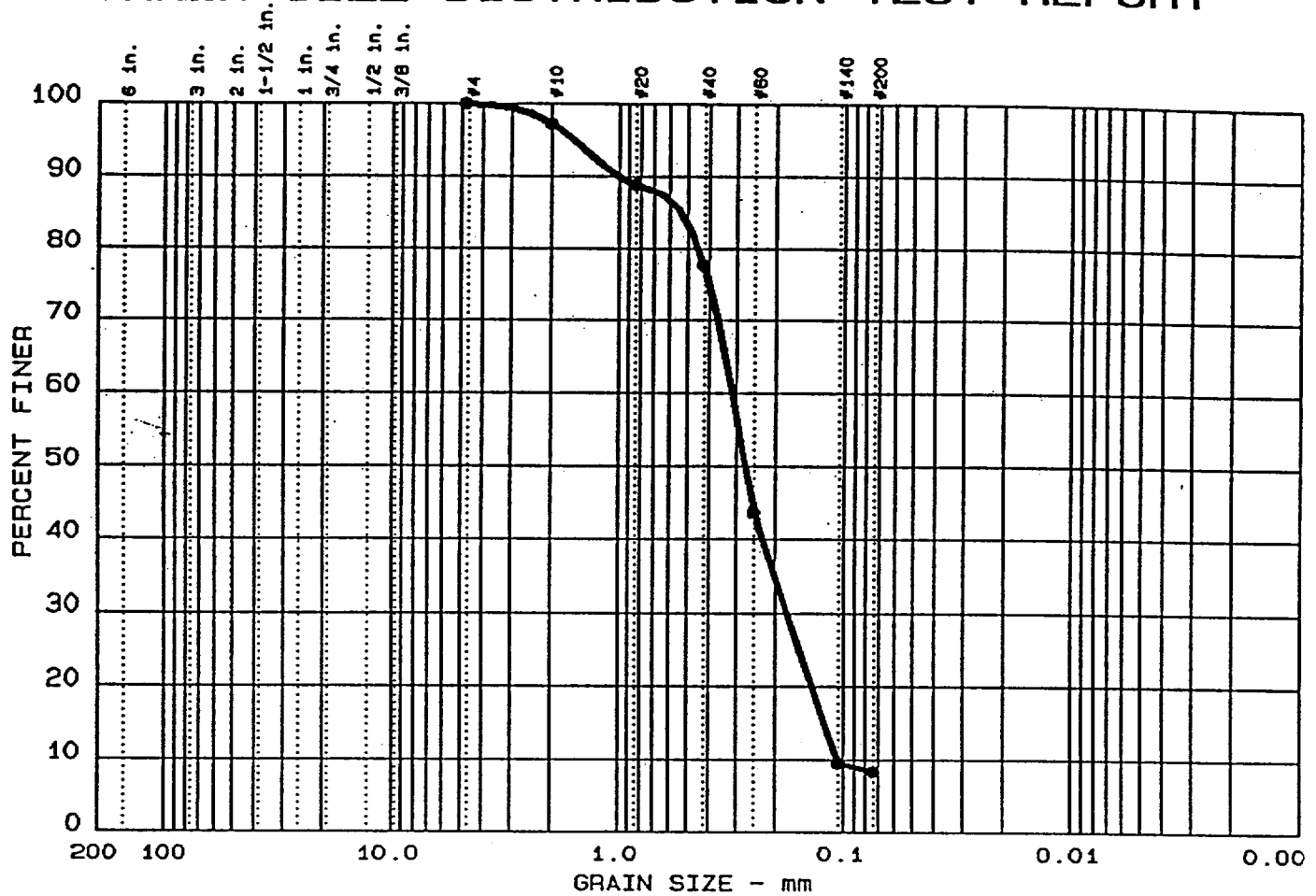
MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-45 @ 74-75.5 Ft.
 Date: March 29, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HS
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
17	0.0	0.2	91.6	8.2	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.52	0.31	0.27	0.177	0.1206	0.1063	0.94	2.9

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 Location: FB-6 SS-46 @ 75.5-77 Ft.

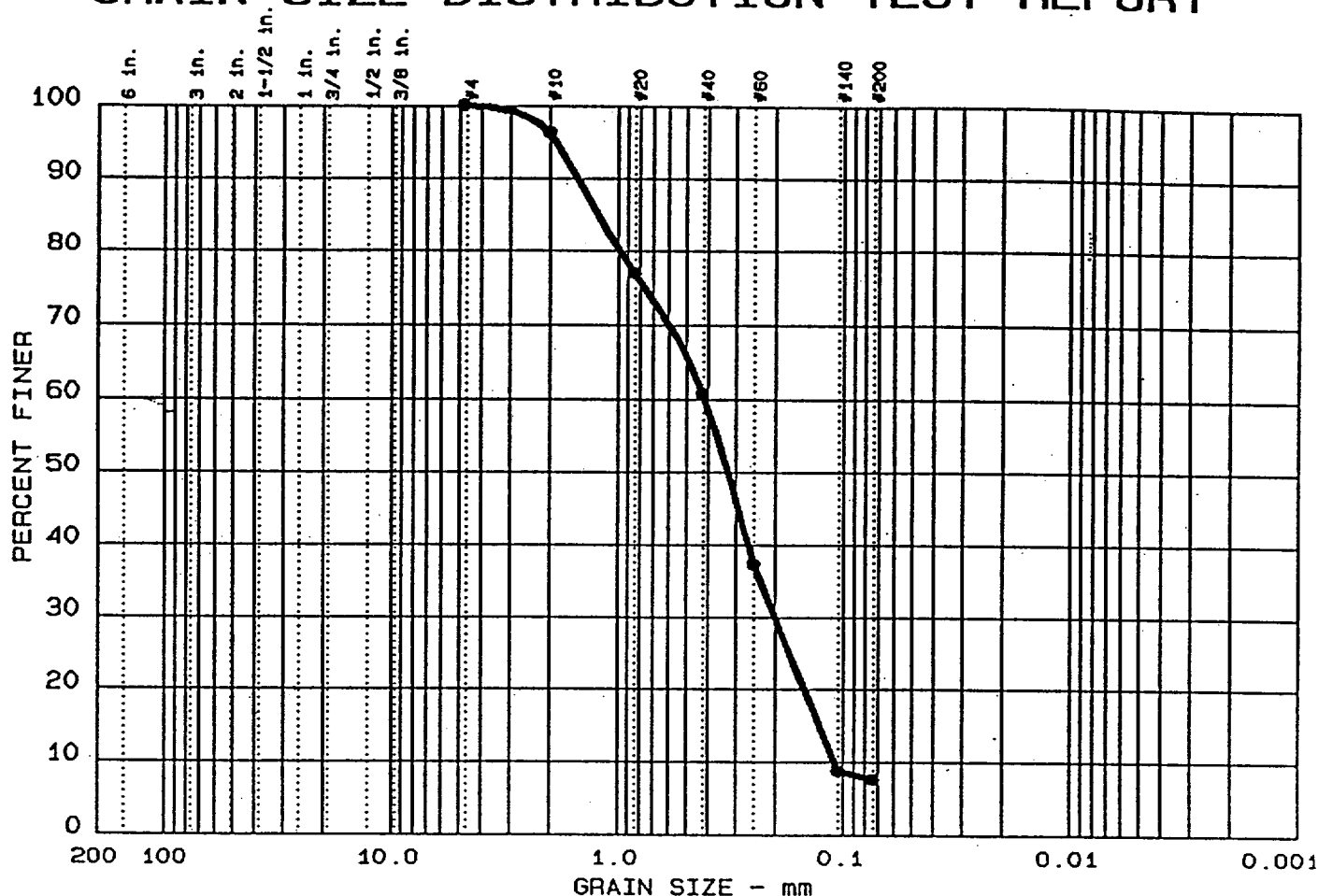
Date: March 29, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HB
 ASTM D 422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 18	0.0	0.0	92.4	7.6	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		1.22	0.41	0.32	0.200	0.1269	0.1089	0.89	3.8

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-47 @ 77-78.5 Ft.

Date: March 29, 1998

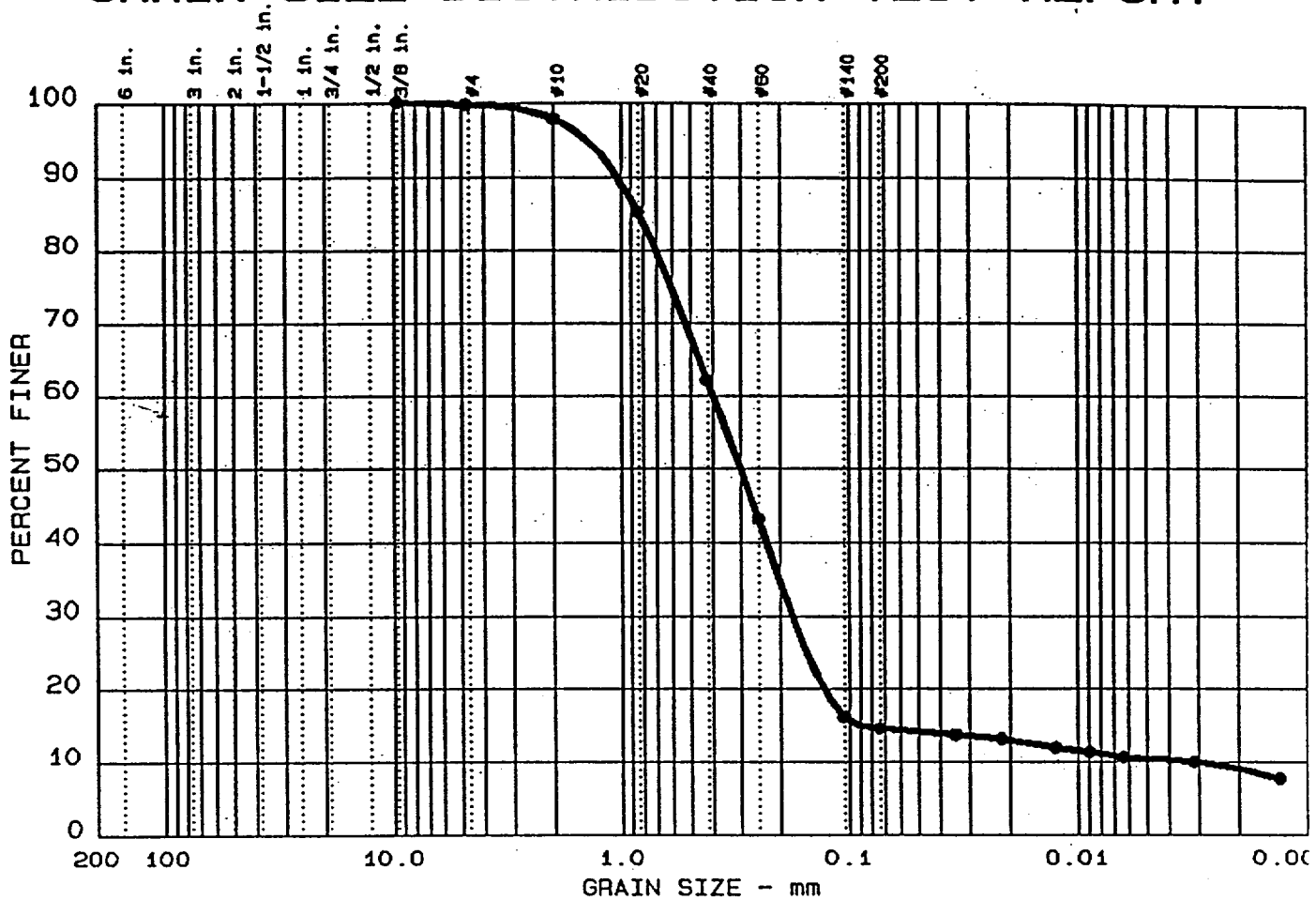
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC
 Reviewed by: HB
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
1	0.0	0.4	85.1	4.1	10.4

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
NL	NP	0.83	0.40	0.30	0.177	0.0907	0.0028	28.48	143.1

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 Location: FB-6 SS-48 @ 78.5-80 Ft.

Date: April 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

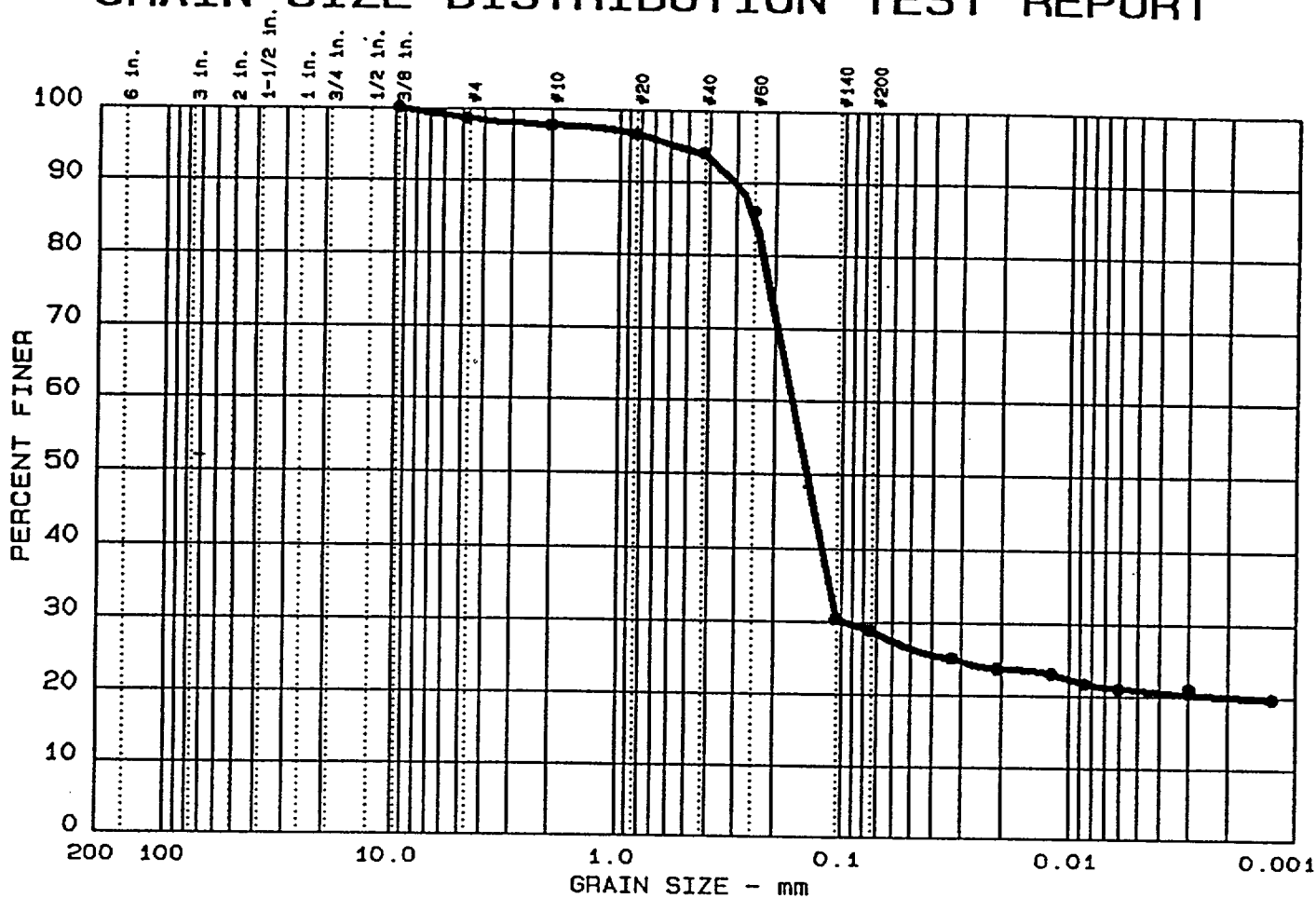
Tested by: SC/JTM

Reviewed by: HB

ASTM D 422
 &
 ASTM D 4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 4	0.0	1.5	69.8	7.9	20.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 36	10	0.25	0.17	0.14	0.097				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

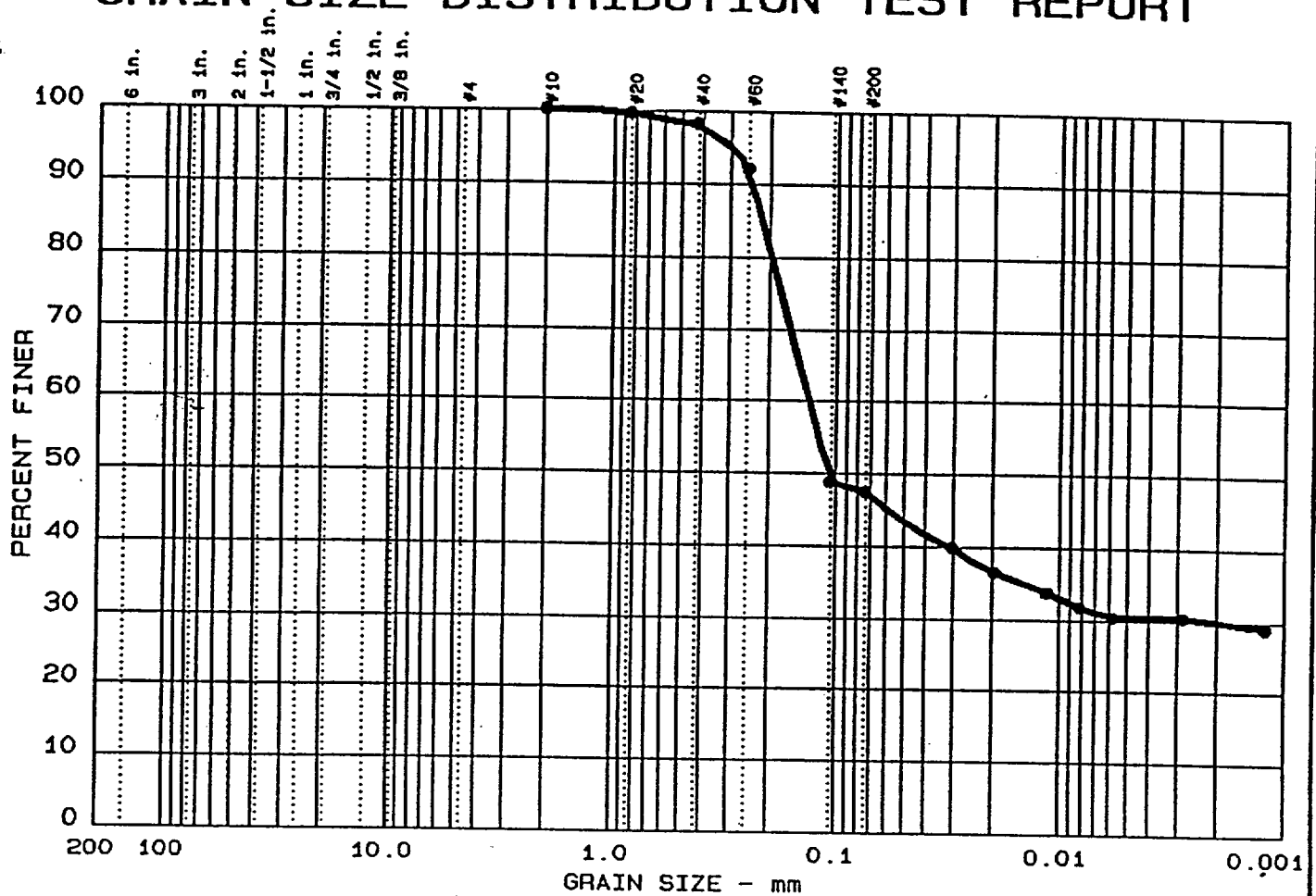
Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-49 @ 80-81.5 Ft.
 Date: April 13, 1998

Remarks:
 Tested by: SC
 Reviewed by: HS

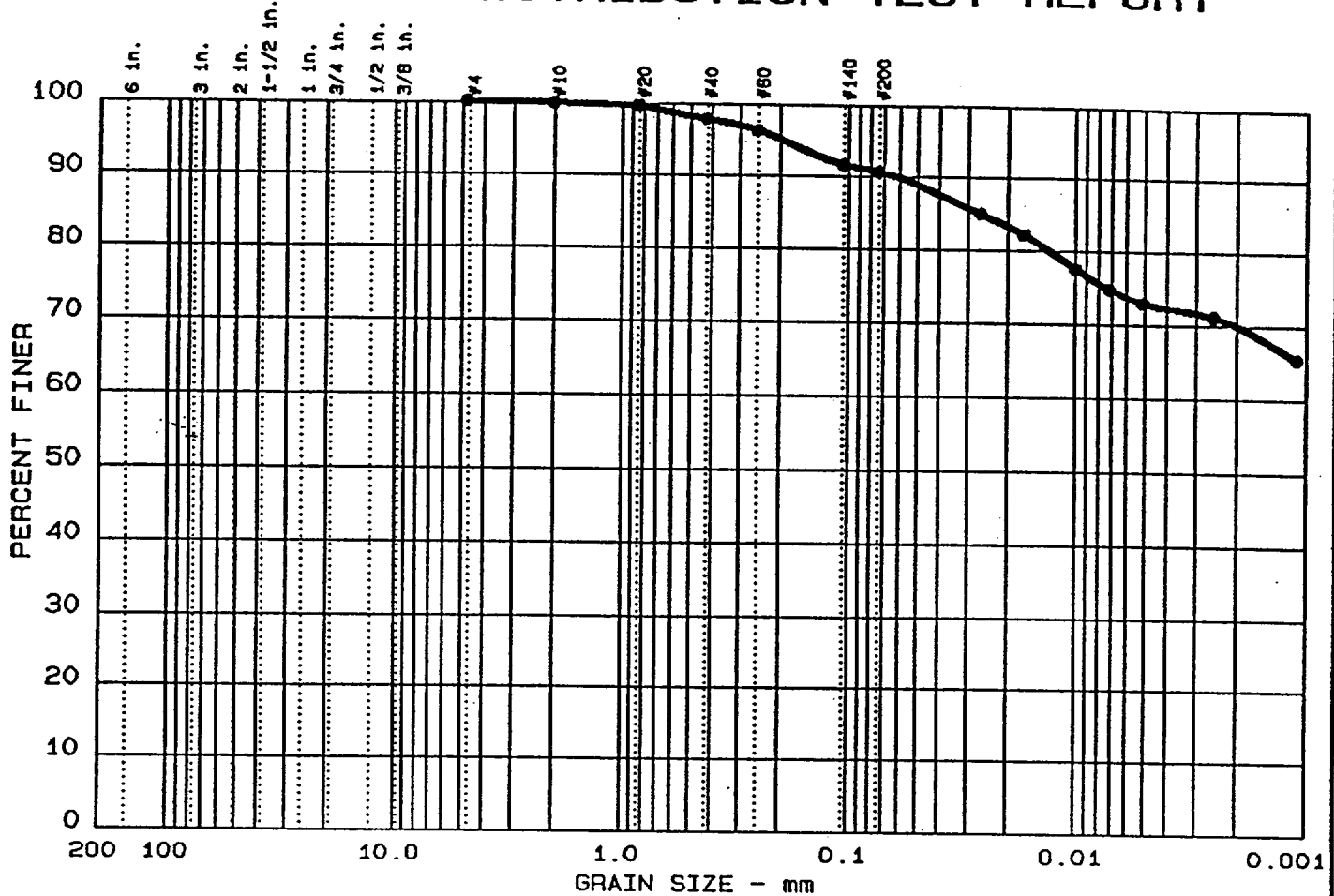
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

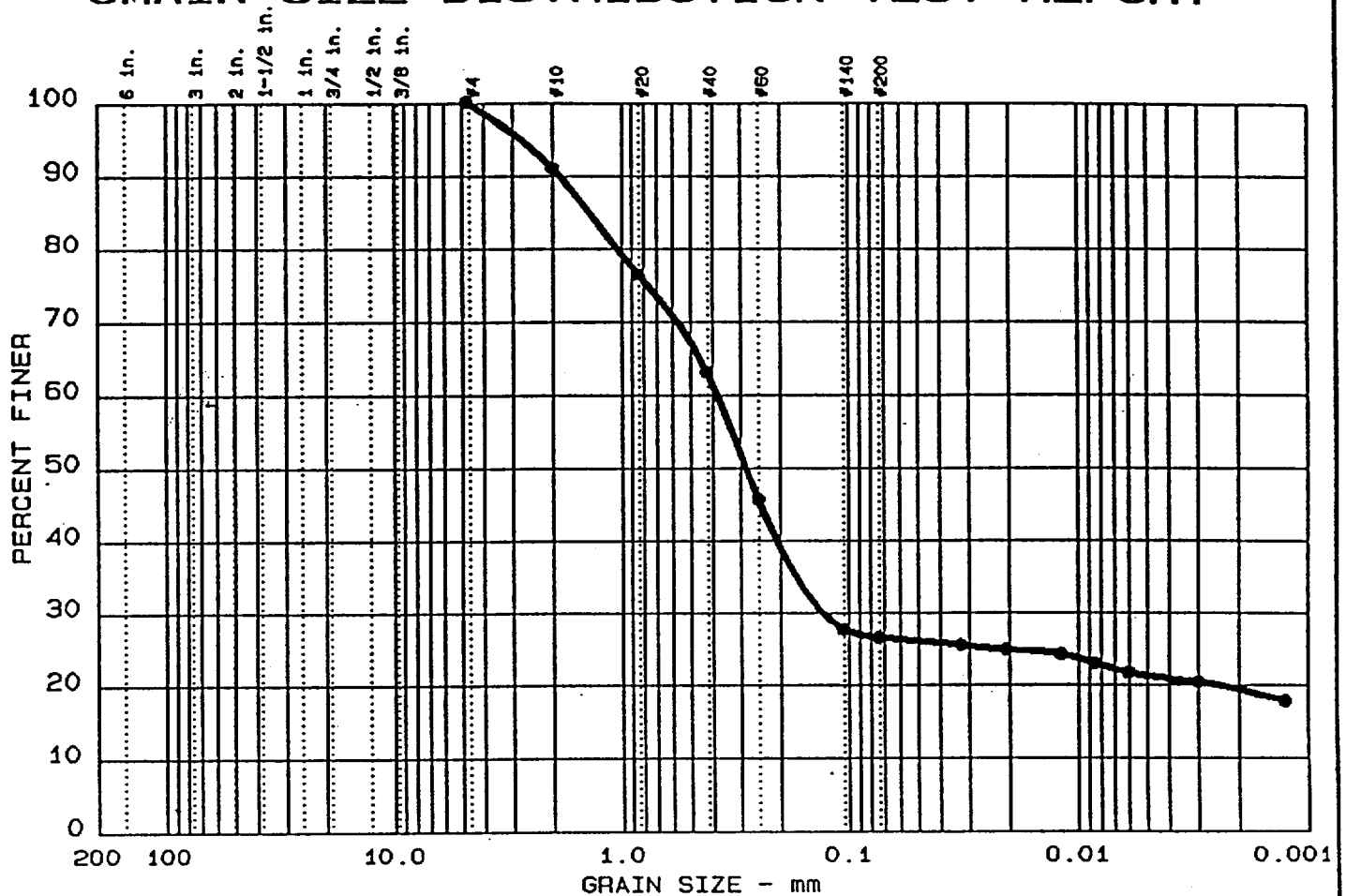
GRAIN SIZE DISTRIBUTION TEST REPORT



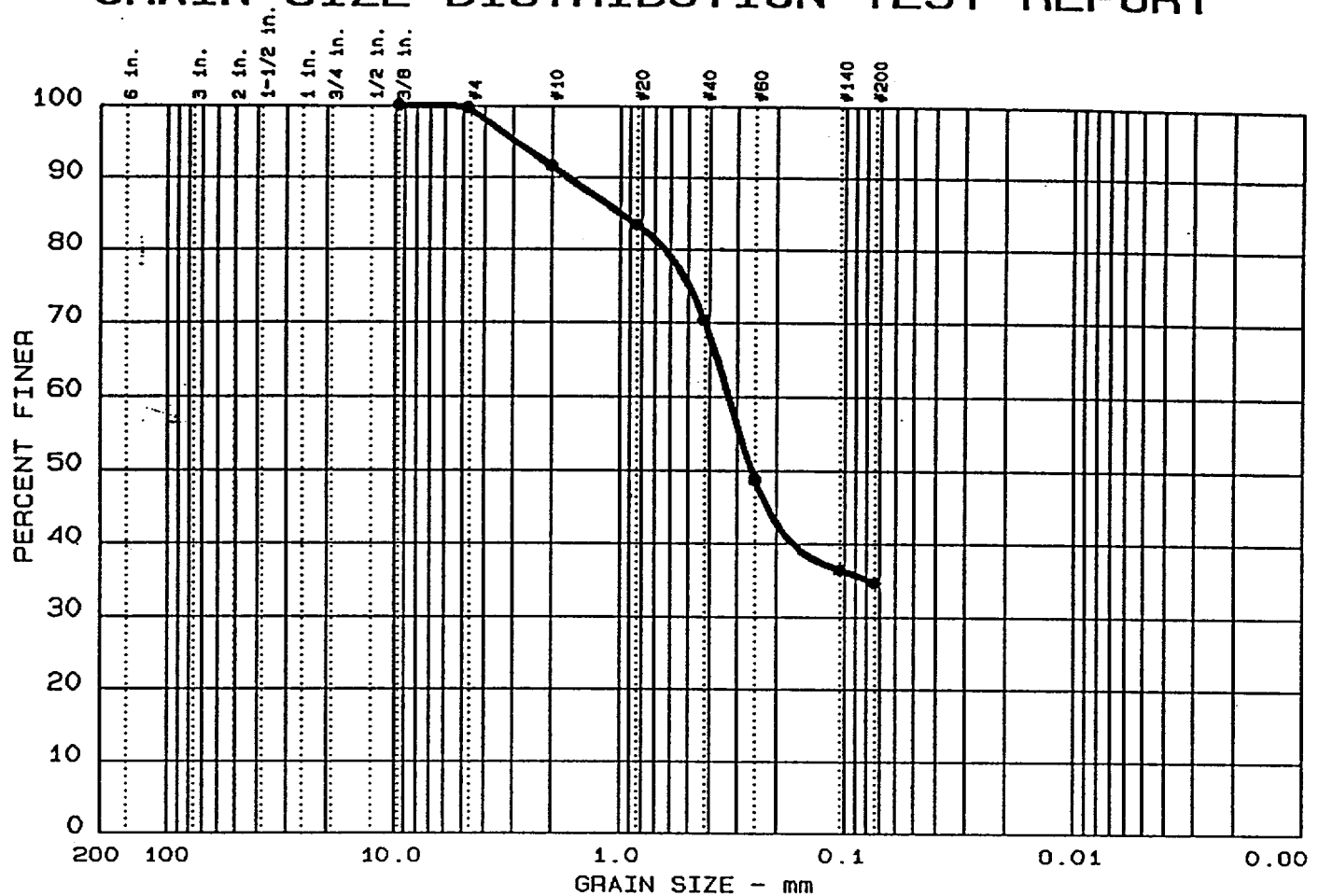
GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



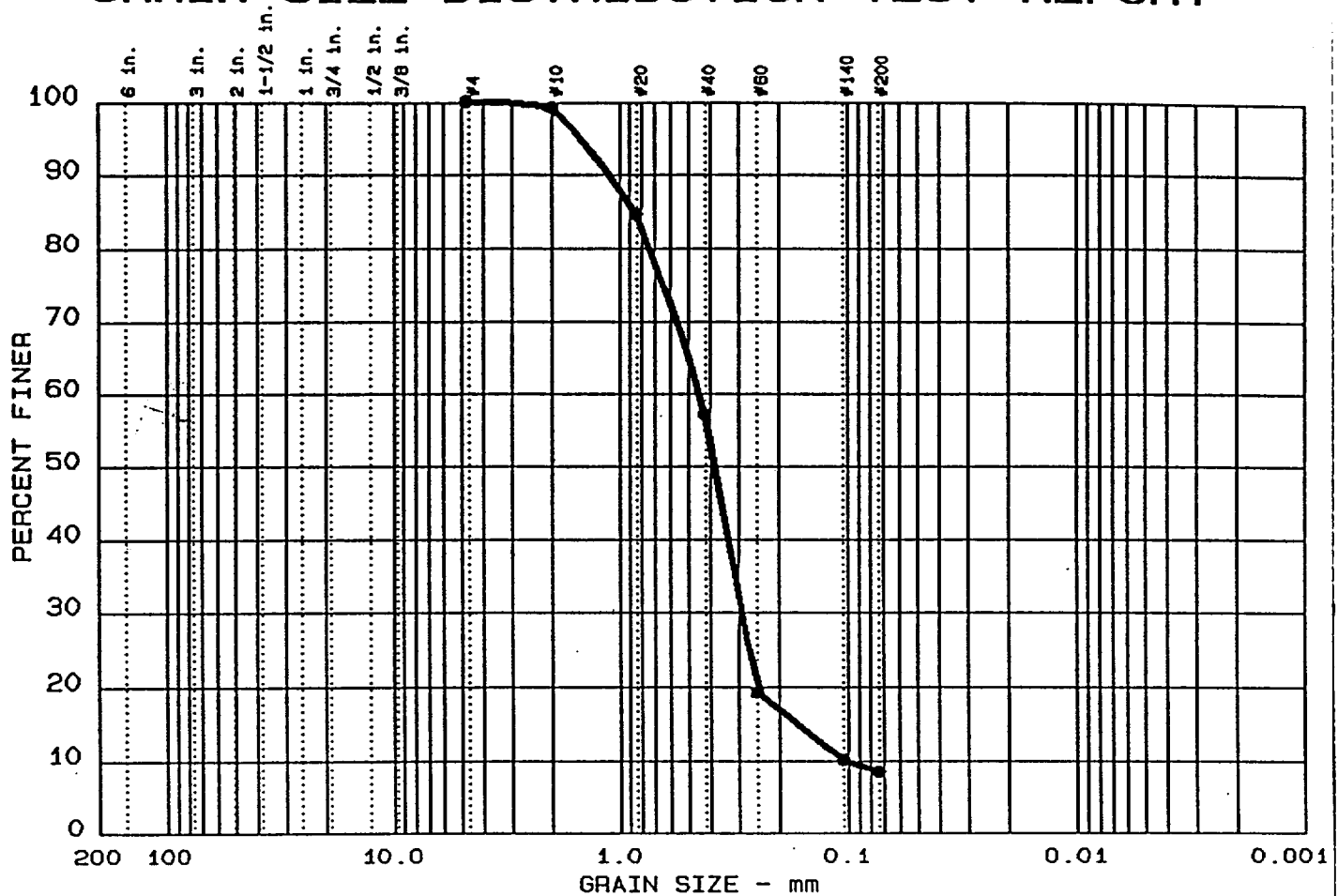
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 19	0.0	0.3	65.1	34.6	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.99	0.33	0.26					

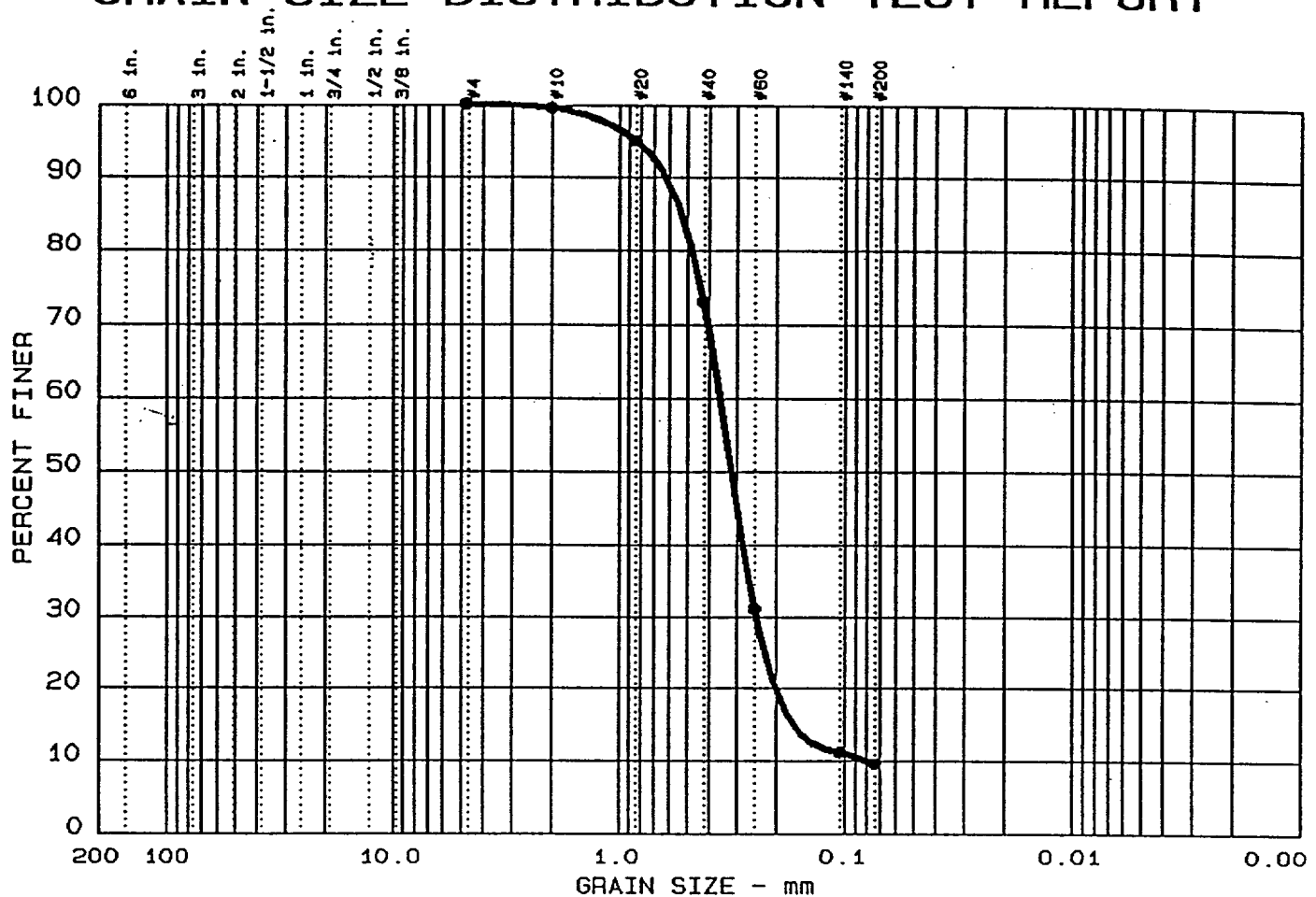
MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-53 @ 86-87.5 Ft. Date: March 29, 1998	Remarks: Tested by: SC Reviewed by: HS ASTM D 422
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 1	0.0	0.0	90.4	9.6	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.52	0.35	0.32	0.245	0.1679	0.0794	2.14	4.5

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-5 SS-55 @ 89-90.5 Ft. Date: March 29, 1998	Remarks: Tested by: SC Reviewed by: HB ASTM D 422
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	
Figure No.	

Grain size distribution plot for Test No. 100-100. The plot shows Percent Finer (0-100) versus Grain Size in mm (200 to 0.001). The curve starts at 100% finer for 200 mm and drops sharply between 1.0 mm and 0.075 mm, leveling off at approximately 8% finer for 0.075 mm and below. Key sieve sizes are marked at the top: 6 in., 3 in., 2 in., 1-1/2 in., 1 in., 3/4 in., 1/2 in., 3/8 in., #4, #10, #20, #40, #60, #140, #200.

	LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●			0.64	0.38	0.33	0.243	0.1552	0.0834	1.87	4.6
			-	-	-	-	-	-	-	-
				:						

Project No.: 50161-7-0108 Task 16
Project: APSF Confirmatory Testing
• Location: FB-6 SS-56 @ 90.5-92 Ft.

Date: March 29, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

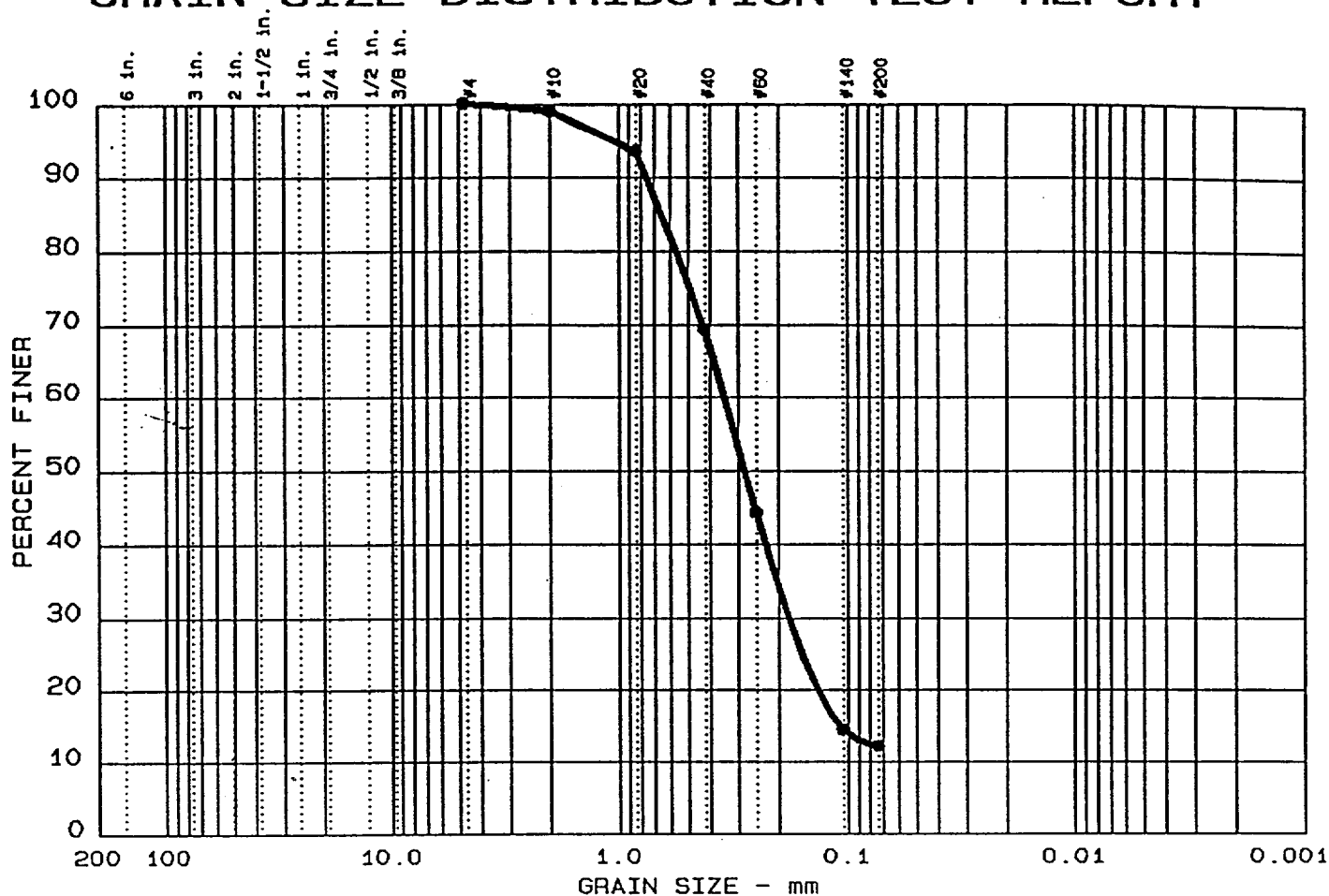
Figure No.

Grain size distribution curve for a sample of sand. The graph plots Percent Finer (0 to 100) against Grain Size in mm (logarithmic scale from 200 to 0.001). The curve shows that approximately 98% of the sand is finer than 4.75 mm, and about 10% is finer than 0.075 mm.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	98
4.75	98
2.5	95
1.18	85
0.85	78
0.60	65
0.425	45
0.30	35
0.25	30
0.15	15
0.075	10
0.06	9

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 4	0.0	0.0	87.8	12.2	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.65	0.34	0.28	0.181	0.1076			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.3)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-59 @ 95-96.5 Ft.

Date: March 29, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

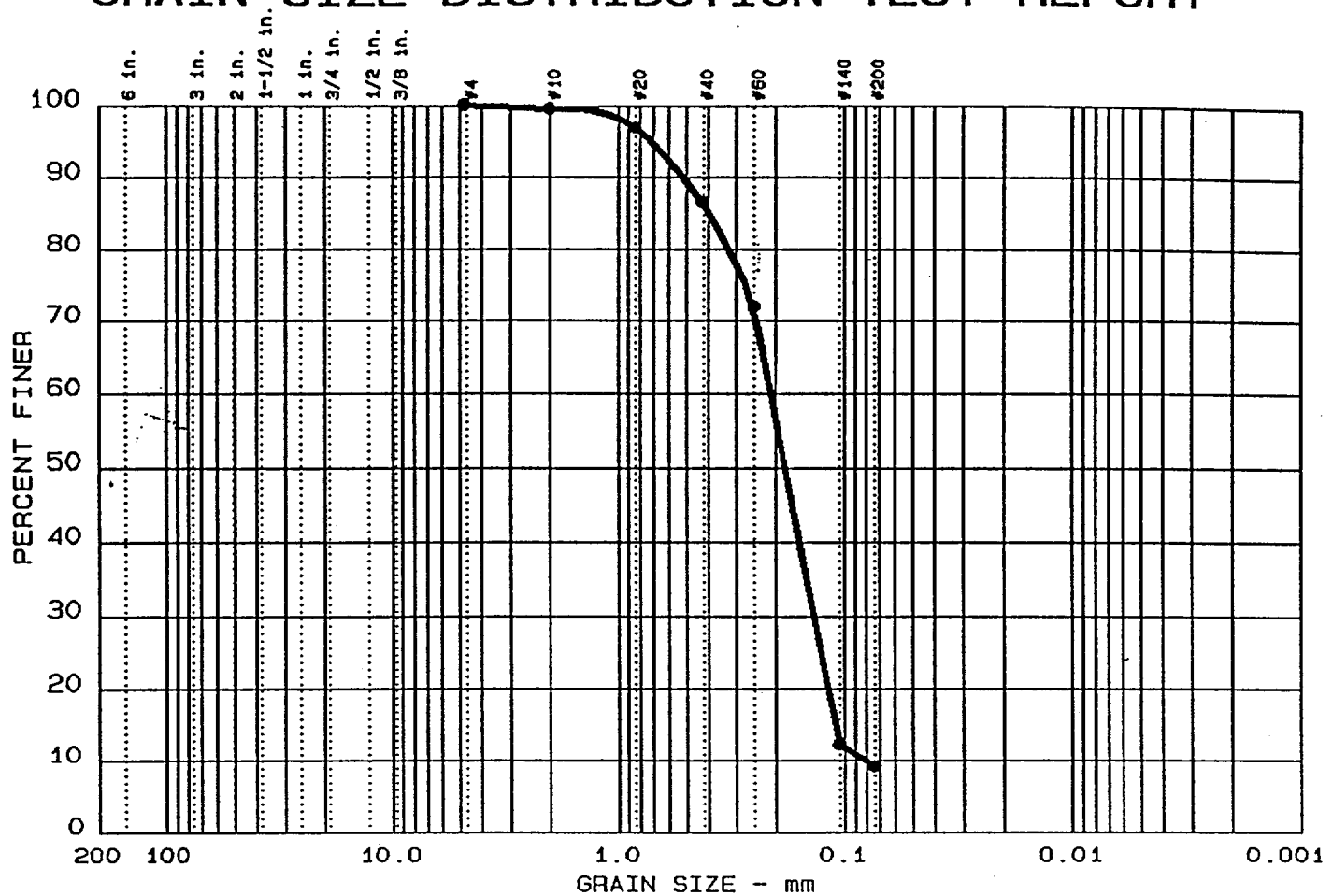
Tested by: *SC*

Reviewed by: *HB*

ASTM D 422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 5	0.0	0.0	90.8	9.2	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.39	0.21	0.18	0.136	0.1091	0.0809	1.09	2.6

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-60 @ 96.5-98 Ft.

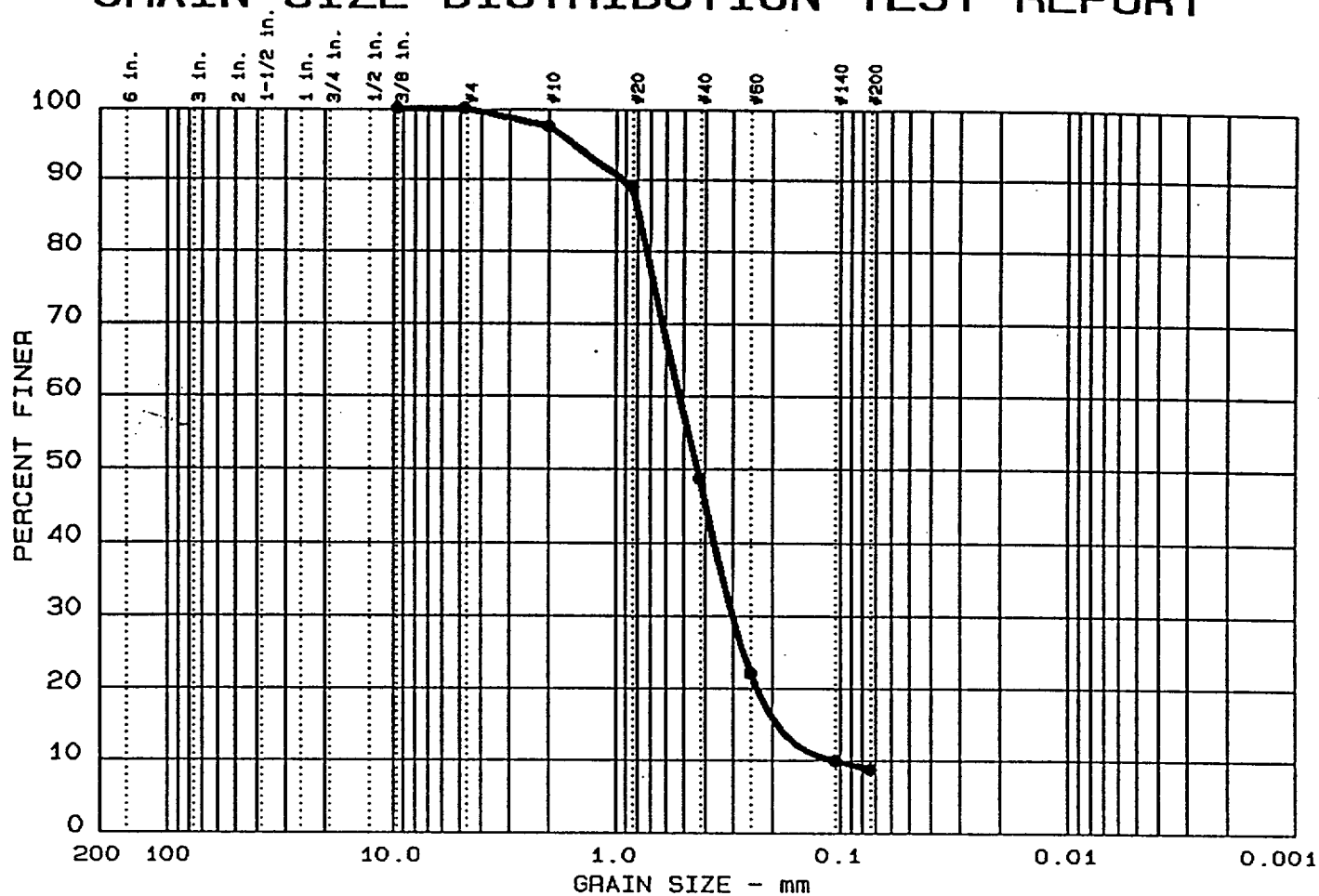
Date: March 29, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HB
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 2	0.0	0.0	91.2	8.8	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.79	0.52	0.43	0.301	0.1901	0.1057	1.66	4.9

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-61 @ 98-99.5 Ft.

Date: April 9, 1998

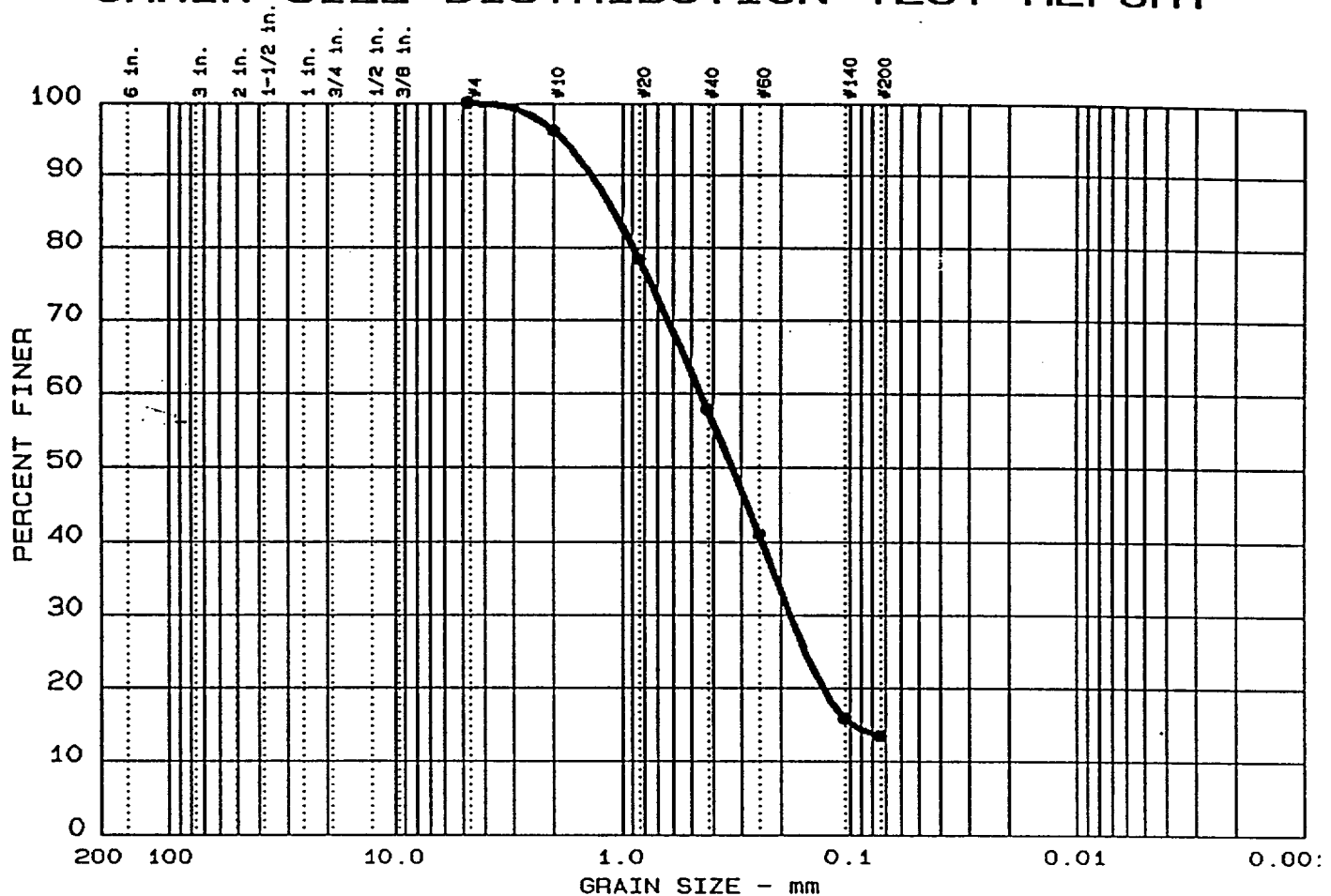
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SK*
 Reviewed by: *H*
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 3	0.0	0.0	86.5	13.5	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• NL	NP	1.08	0.45	0.33	0.182	0.0964			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.1)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-62 @ 99.5-101.0 Ft.

Date: April 9, 1998

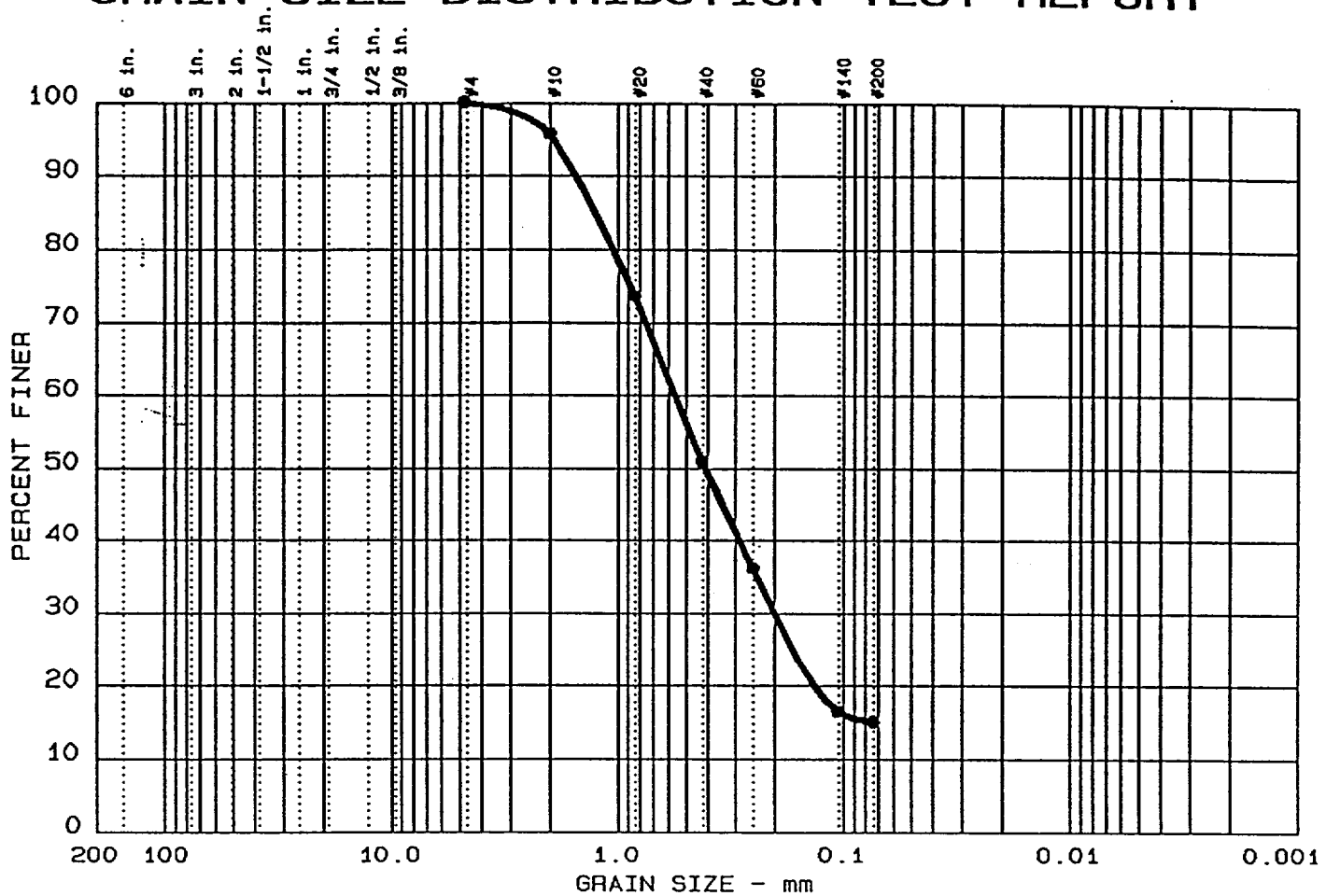
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC
 Reviewed by: AB
 ASTM D422
 &
 ASTM D4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 4	0.0	0.0	84.9	15.1	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• NL	NP	1.24	0.56	0.41	0.201				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-63 @ 101-102.5 Ft.

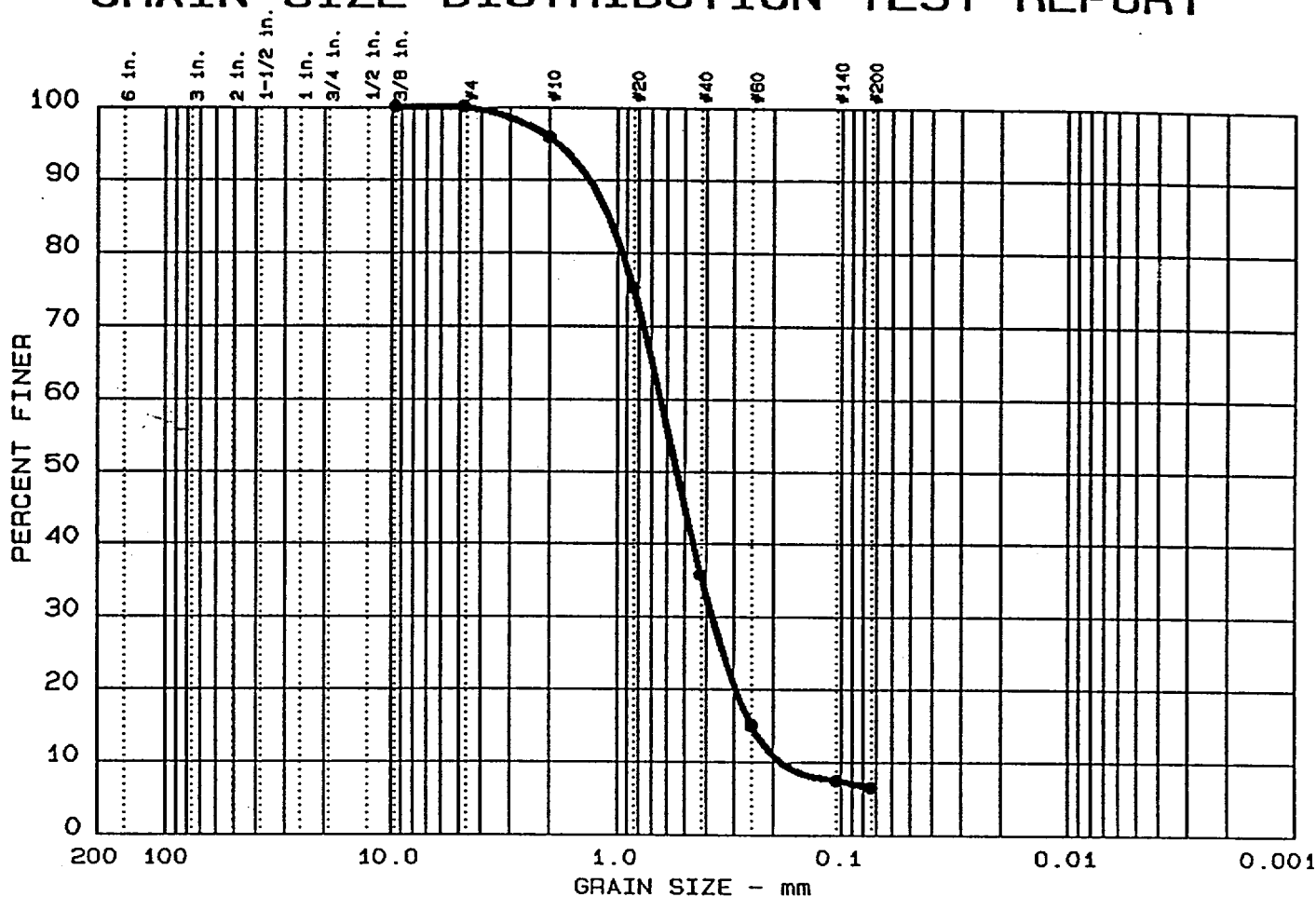
Date: April 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HB
 ASTM D422
 &
 ASTM D4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 5	0.0	0.0	93.5	6.5	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		1.08	0.63	0.54	0.375	0.2480	0.1860	1.20	3.4

MATERIAL DESCRIPTION	USCS	AASHTO
• Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-64 @ 102.5-104 Ft.

Date: April 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC

Reviewed by: H

ASTM D422

Figure No.

Grain size distribution curve for Test Report No. 1. The curve shows a sharp drop between 1.0 mm and 0.075 mm, with 100% finer at 1.0 mm and approximately 5% finer at 0.075 mm.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
7.5	100
5.0	100
4.75	100
4.0	100
3.0	100
2.5	100
2.0	100
1.5	100
1.0	100
0.85	98
0.75	43
0.6	20
0.425	10
0.3	7
0.25	6

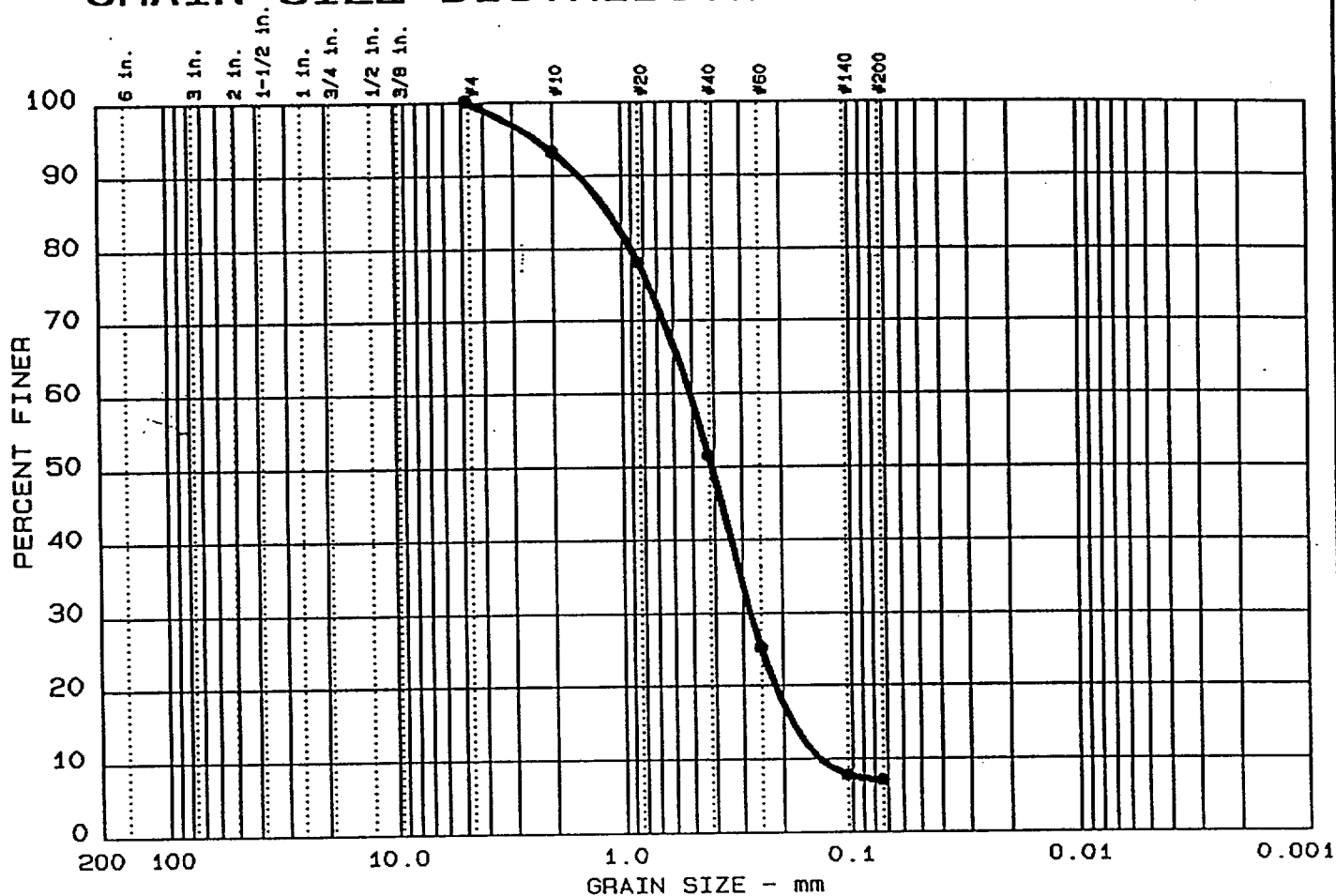
Figure No.

Grain size distribution plot for Test No. 101. The y-axis is 'PERCENT FINER' (0-100) and the x-axis is 'GRAIN SIZE - mm' (log scale, 200 to 0.001). The curve shows 100% finer for sizes down to 0.425 mm (#40), then drops to approximately 5% finer at 0.075 mm (#200).

Grain Size (mm)	Grain Size (in.)	Percent Finer (%)
200	0.075	100
100	0.150	100
60	0.250	100
40	0.425	100
20	0.850	80
10	1.750	53
5	3.550	27
2	7.500	8
1	15.000	6

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
7	0.0	0.0	92.9	7.1	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		1.12	0.50	0.41	0.277	0.1826	0.1369	1.11	3.7

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 Location: FB-6 SS-67 @ 107-108.5 Ft.

Date: April 15, 1998

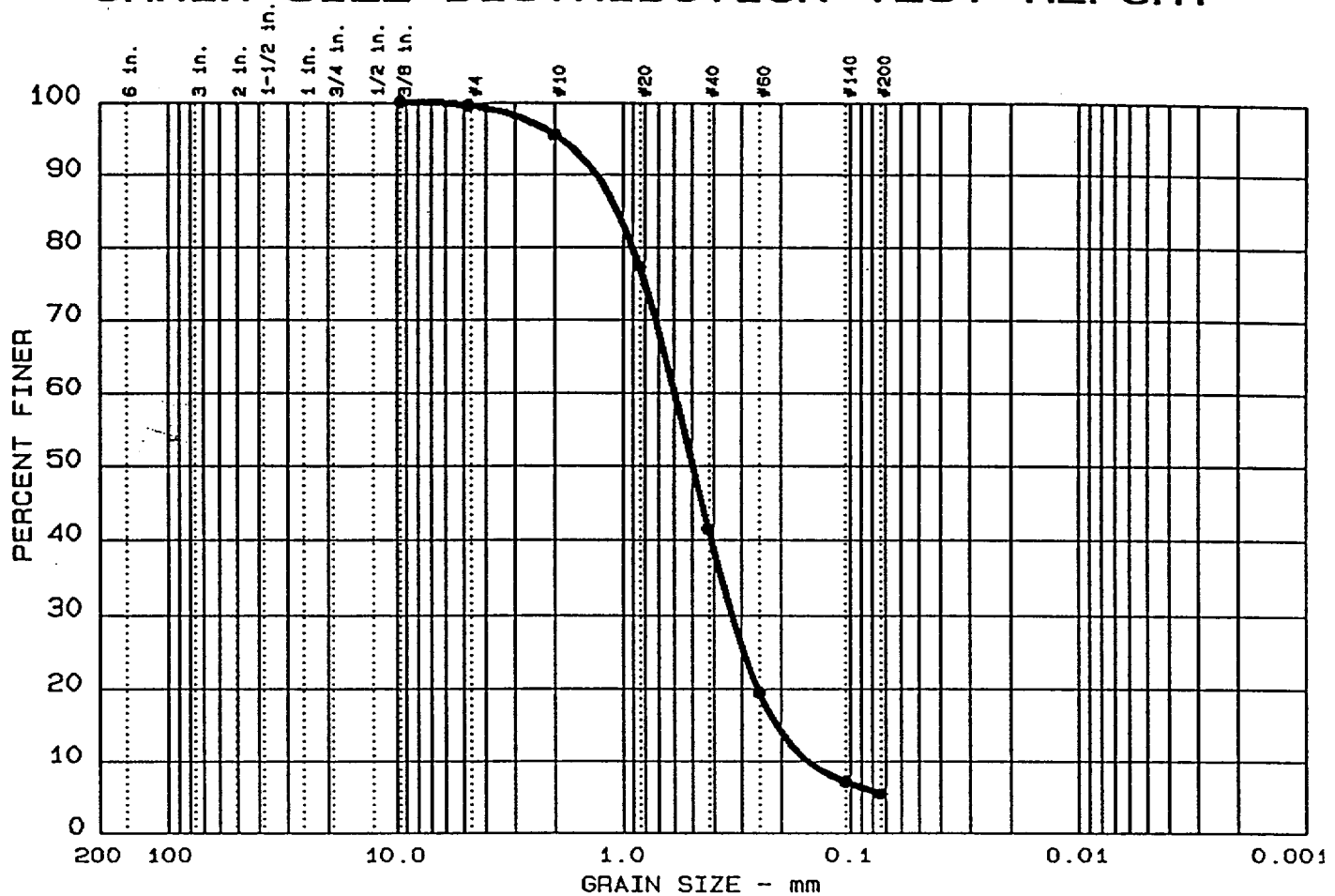
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

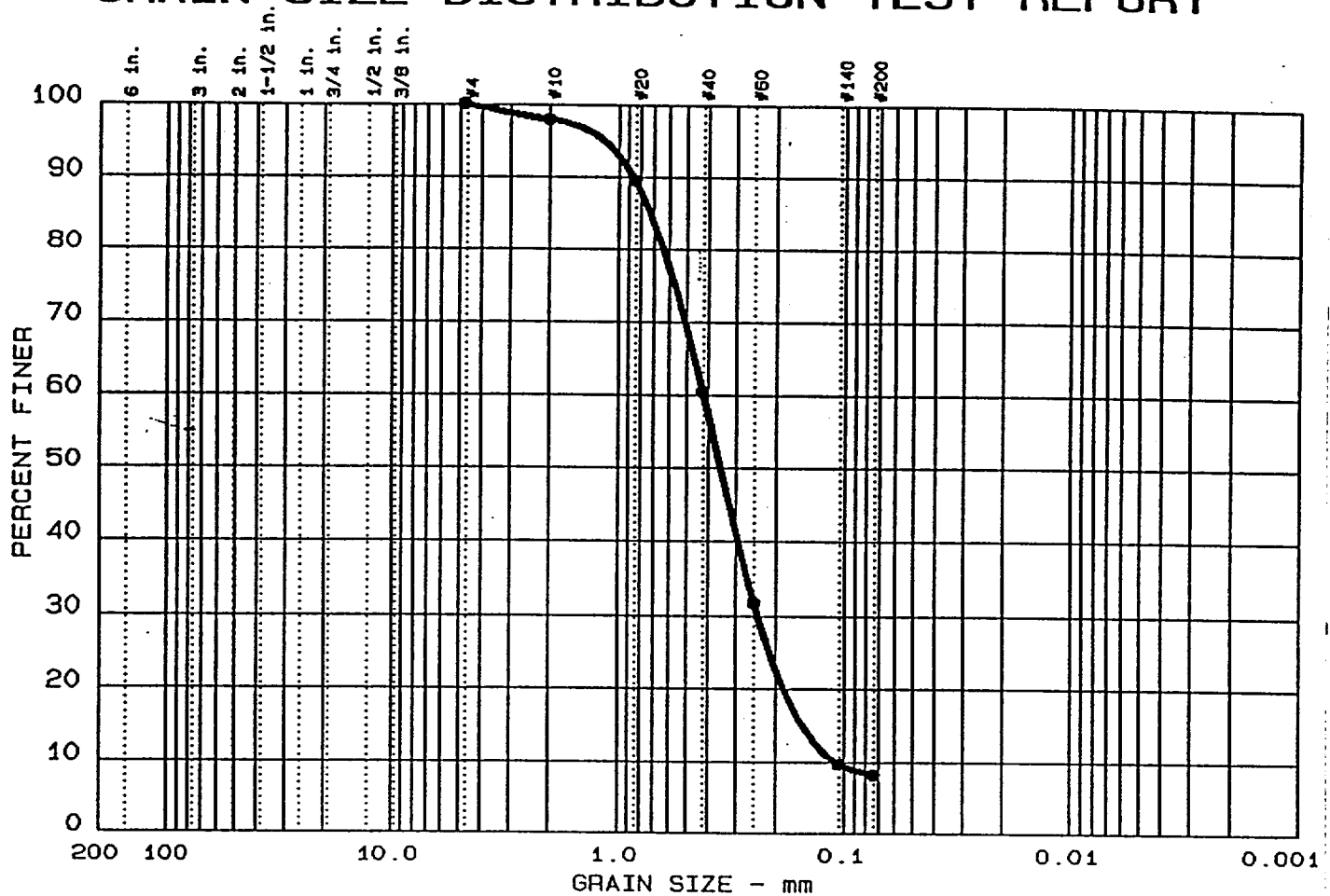
Tested by: SC
 Reviewed by: HJ
 ASTM D 422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



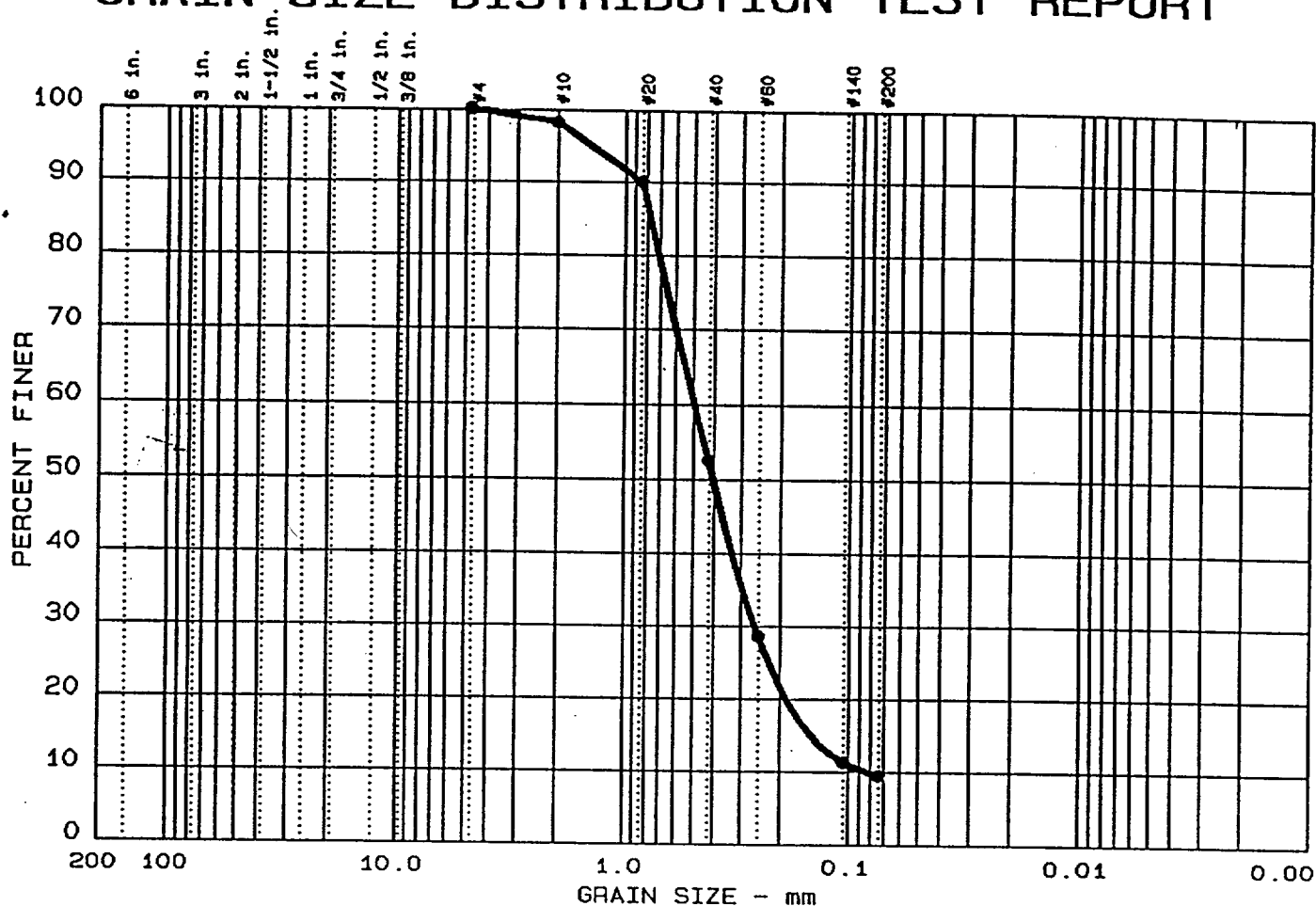
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 9	0.0	0.0	91.8	8.2	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.72	0.42	0.35	0.241	0.1522	0.1078	1.30	3.9

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-69 @ 110-111.5 Ft. Date: April 15, 1998	Remarks: Tested by: <i>SC</i> Reviewed by: <i>145</i> ASTM D 422 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 8	0.0	0.0	90.5	9.5	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		0.77	0.49	0.40	0.260	0.1447	0.0833	1.66	5.9

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 ● Location: FB-6 SS-70 @ 111.5-113 Ft.

Date: April 15, 1998

Remarks:

Tested by: *SC*

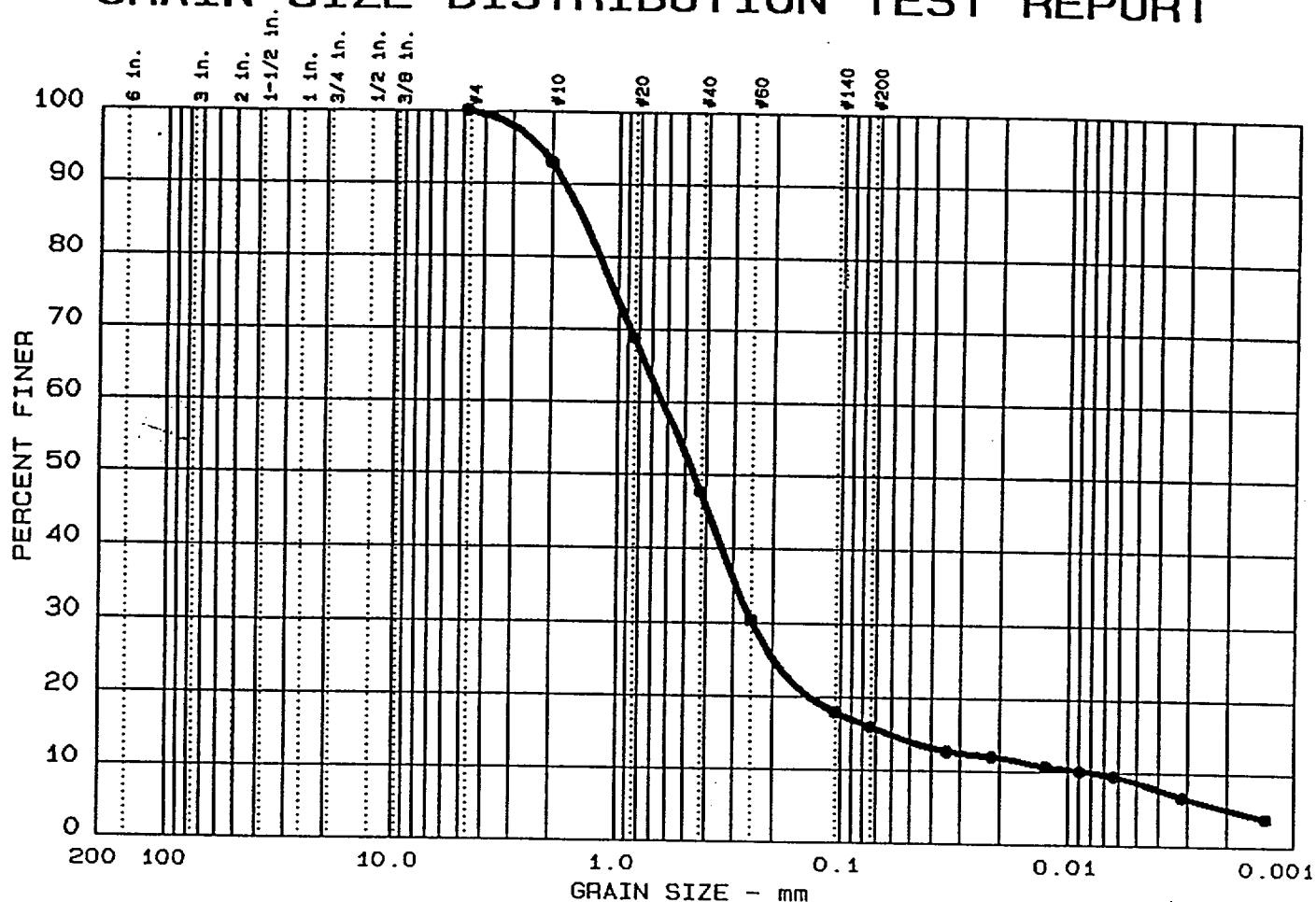
Reviewed by: *HO*

ASTM D 422

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 5	0.0	0.0	84.0	7.3	8.7

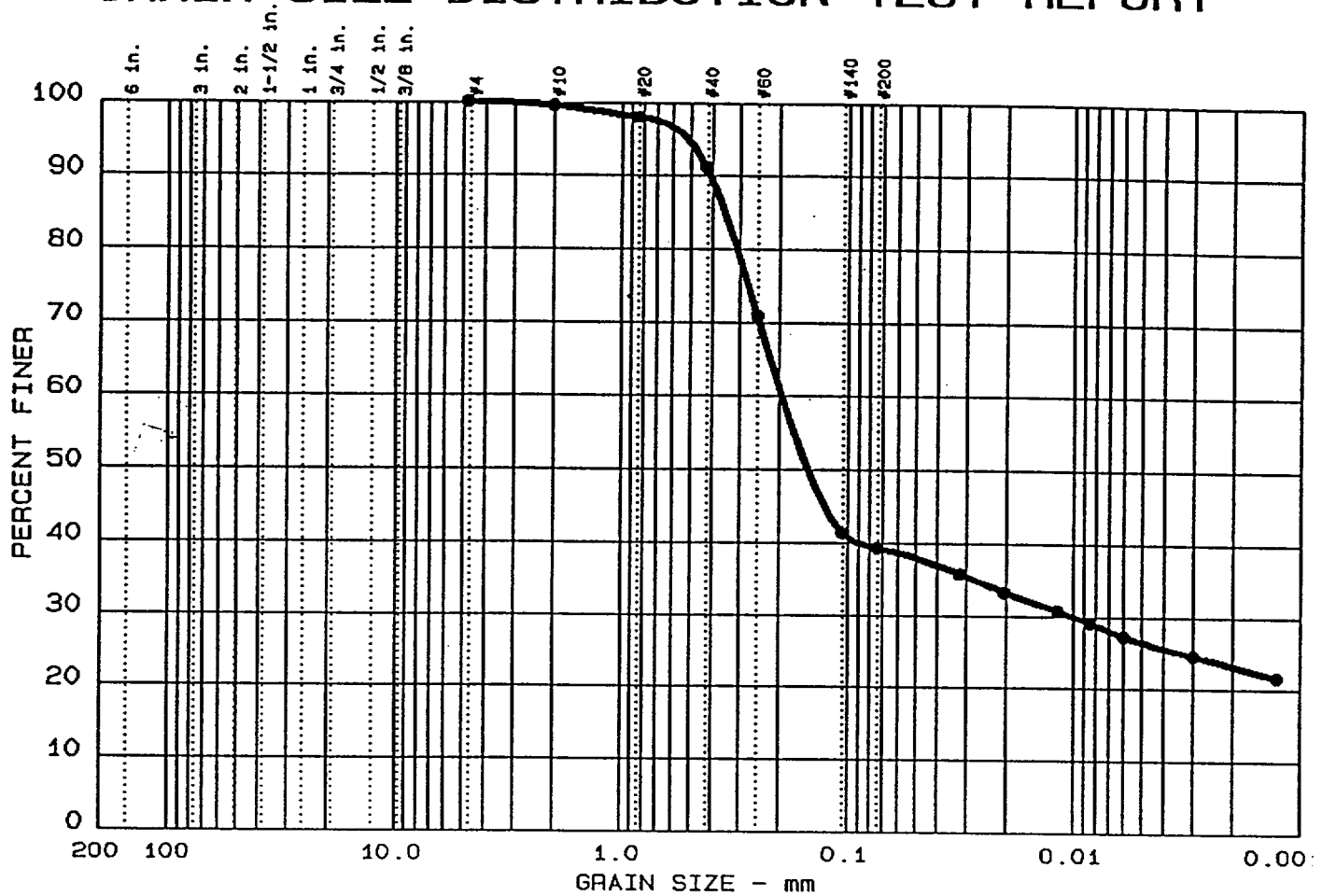
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 40	2	1.43	0.62	0.45	0.247	0.0587	0.0079	12.40	78.8

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-1-b

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-71 @ 113-114.5 Ft.
 Date: April 13, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: NB
 ASTM D 422
 &
 ASTM D 4318
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



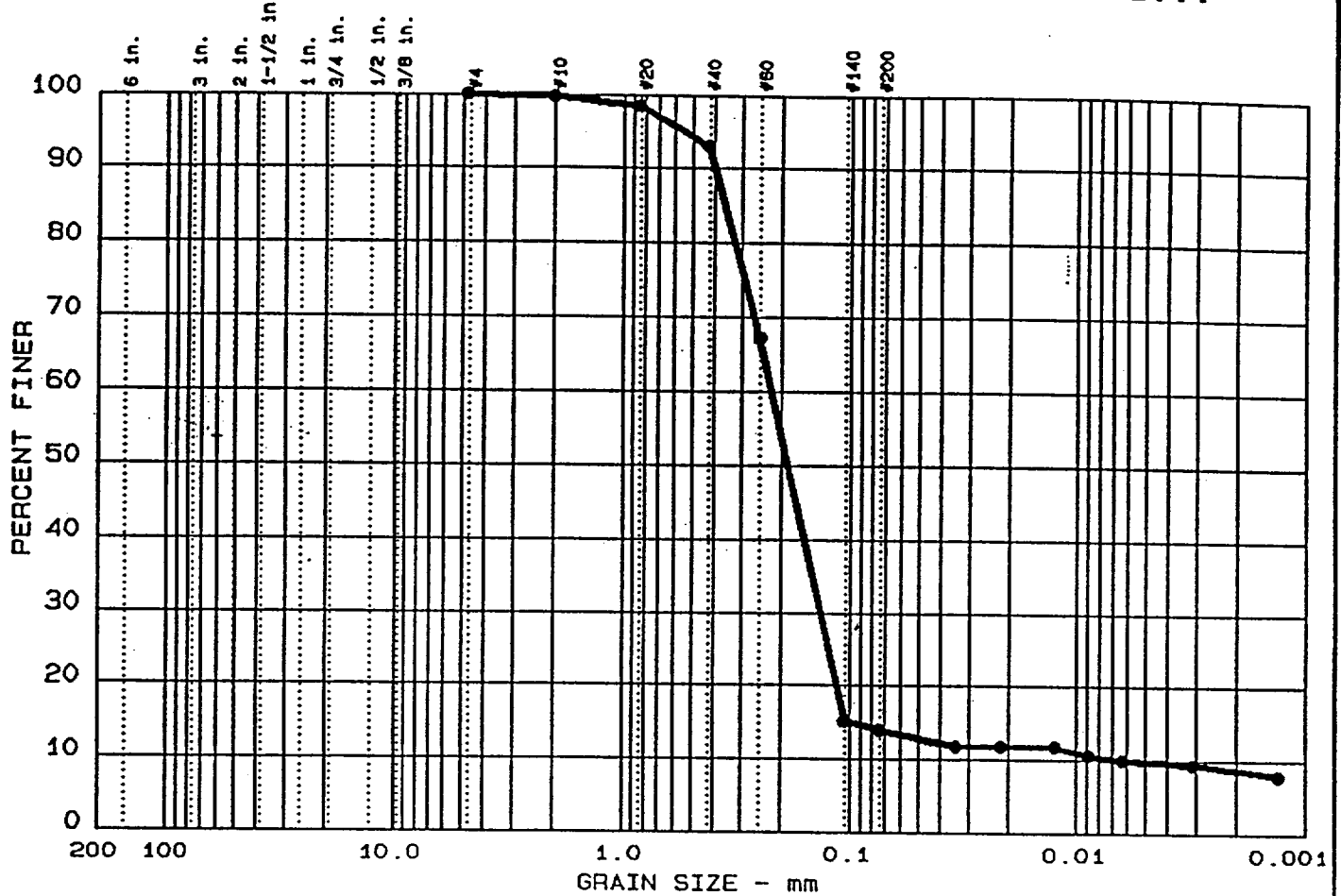
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 6	0.0	0.0	60.8	12.8	26.4

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 63	22	0.35	0.19	0.15	0.010				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-7-5 (4.1)

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-72 @ 114.5-116 Ft. Date: April 13, 1998	Remarks: Tested by: SC Reviewed by: HJ ASTM D422 & ASTM D4318 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 18	0.0	0.0	85.1	4.1	9.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● NL	NP	0.35	0.22	0.19	0.134	0.1007	0.0062	13.12	35.6

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Silty Sand	SM	A-2-4 (0.1)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 ● Location: FB-6 SS-73 @ 116-117.5 Ft.

Date: April 9, 1998

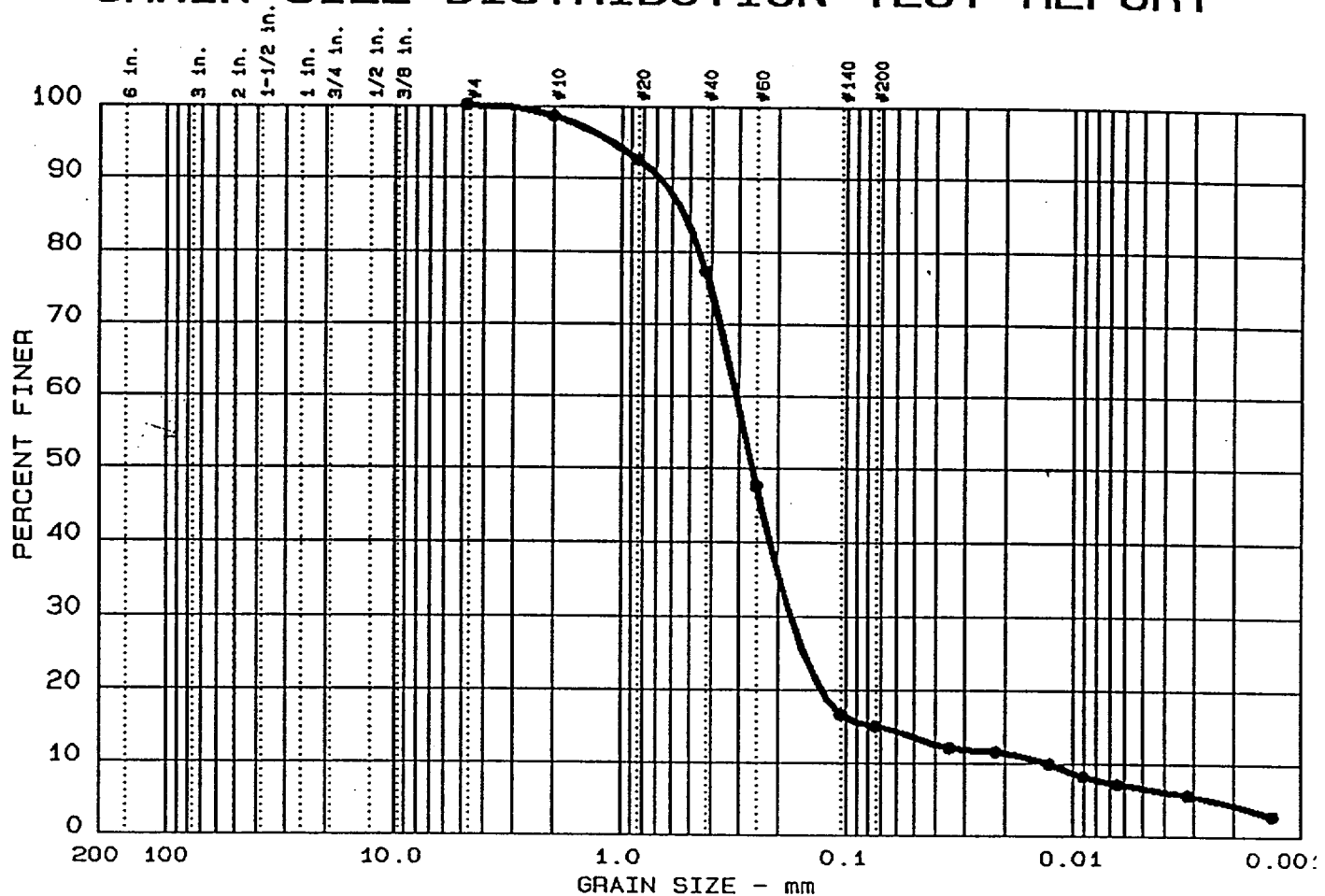
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC
 Reviewed by: HJ
 ASTM D422
 &
 ASTM D4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
9	0.0	0.0	84.9	8.5	6.6

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.52	0.31	0.26	0.175	0.0705	0.0130	7.68	23.7

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan & White Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-74 @ 117.5-119 Ft.

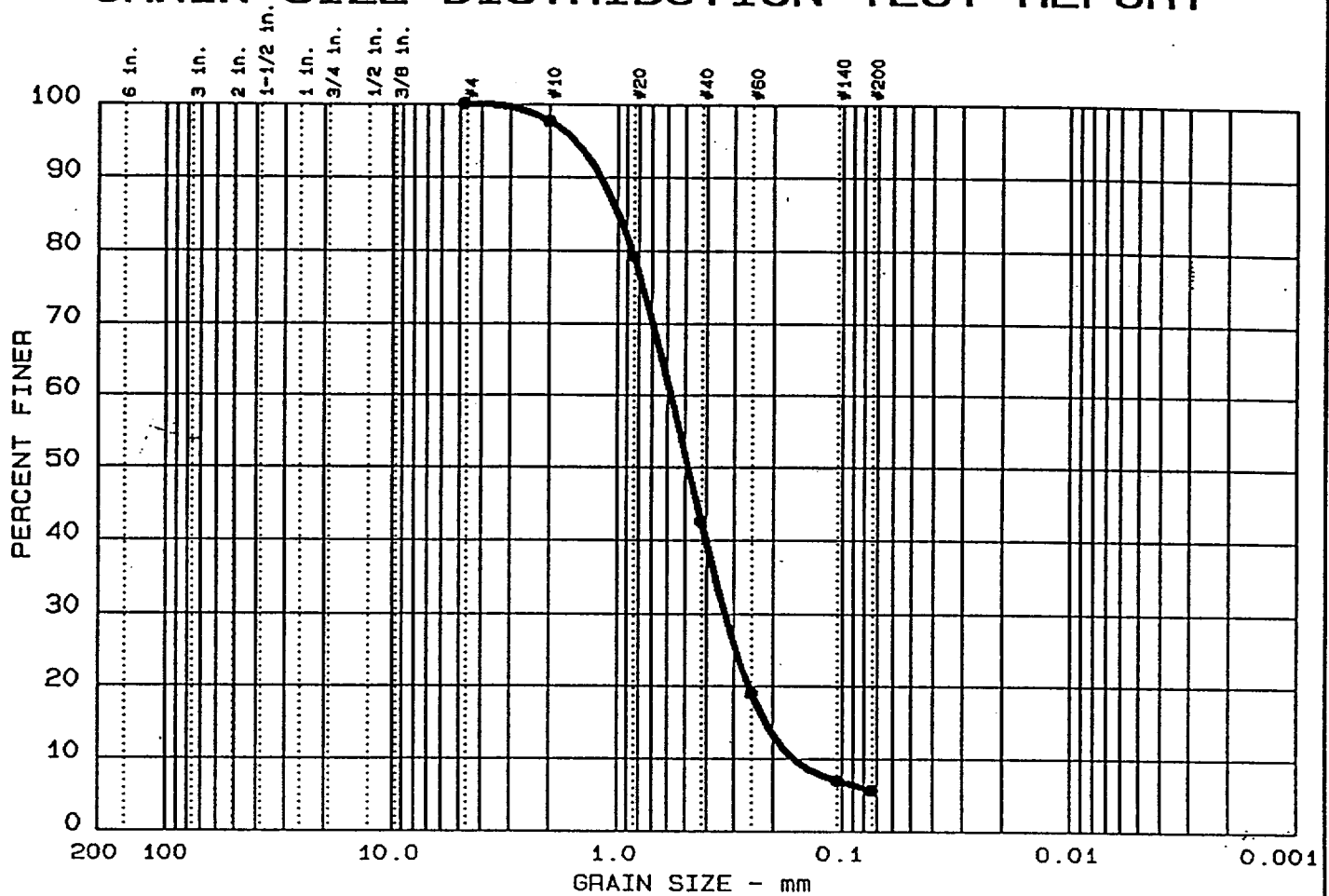
Date: April 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SC*
 Reviewed by: *HB*
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
1	0.0	0.0	94.4	5.6	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.98	0.57	0.48	0.328	0.2163	0.1622	1.16	3.5

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

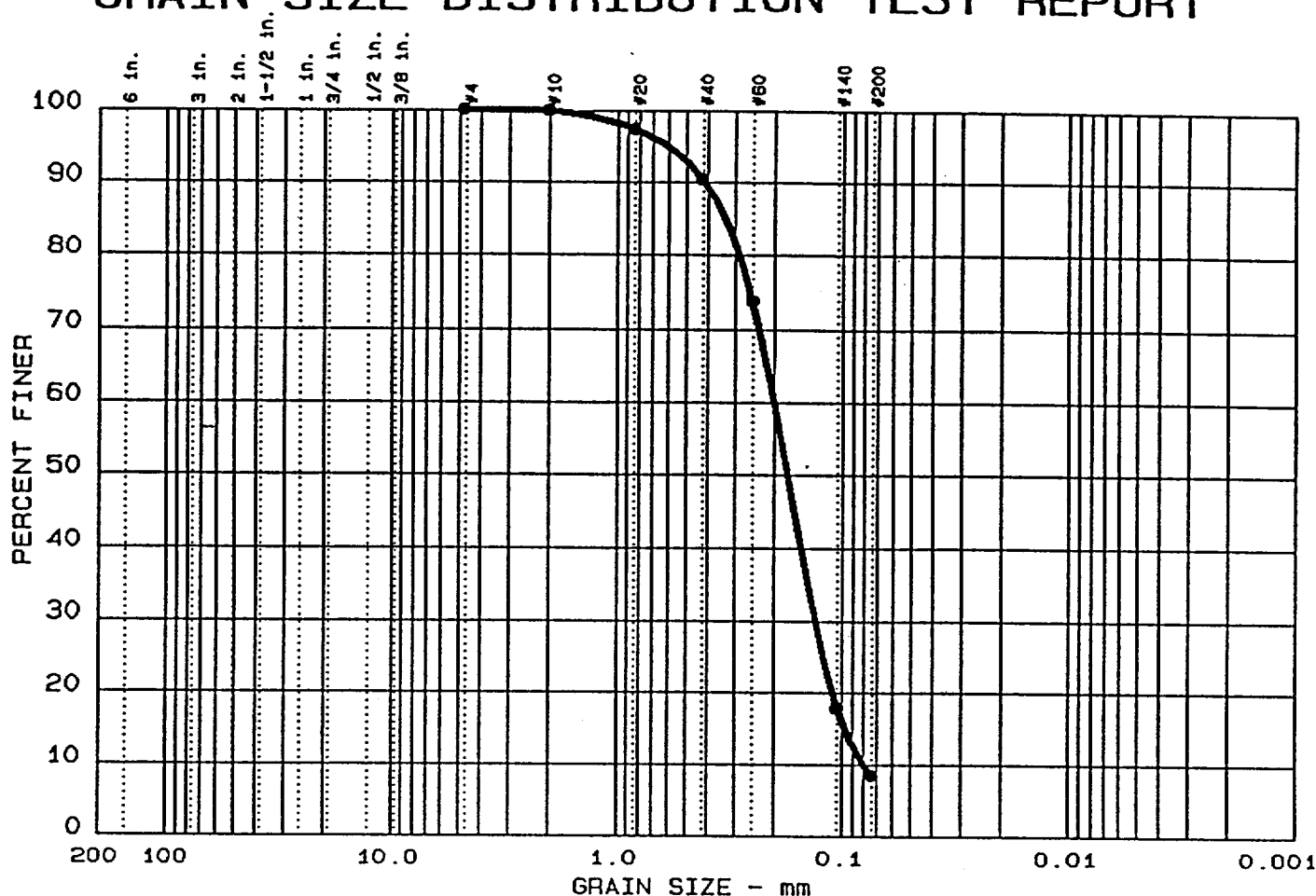
Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: Fb-6 SS-75 @ 119-120.5 Ft.
 Date: April 15, 1998

Remarks:
 Tested by: SC
 Reviewed by: HS
 ASTM D422

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



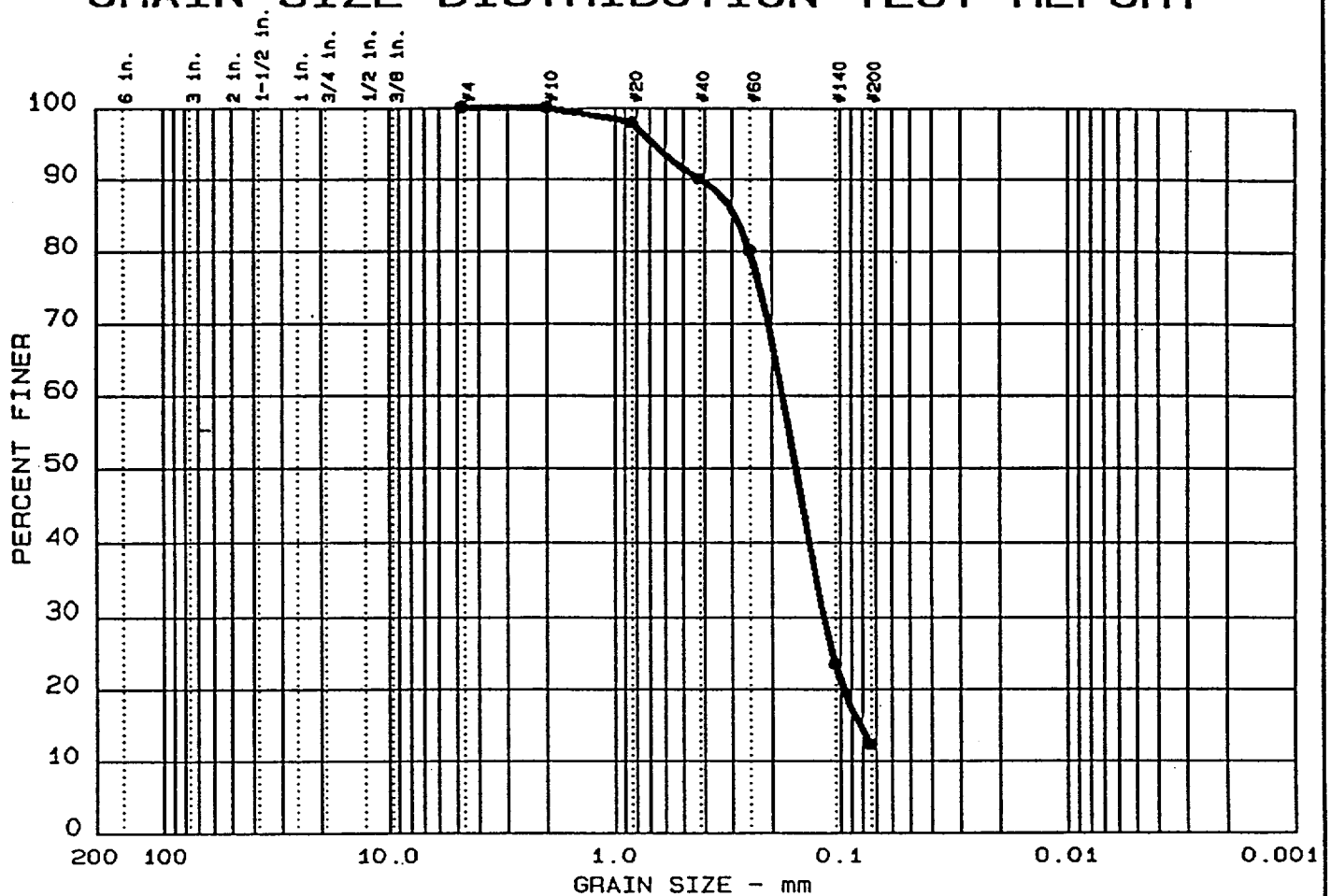
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 3	0.0	0.0	91.5	8.5	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.33	0.20	0.17	0.131	0.0971	0.0798	1.08	2.5

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-77 @ 122-123.5 Ft. Date: April 15, 1998	Remarks: Tested by: SC Reviewed by: HP ASTM D422 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 4	0.0	0.0	87.6	12.4	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.29	0.18	0.16	0.118	0.0817			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.3)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-78 @ 123.5-125.0 Ft.

Date: April 15, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

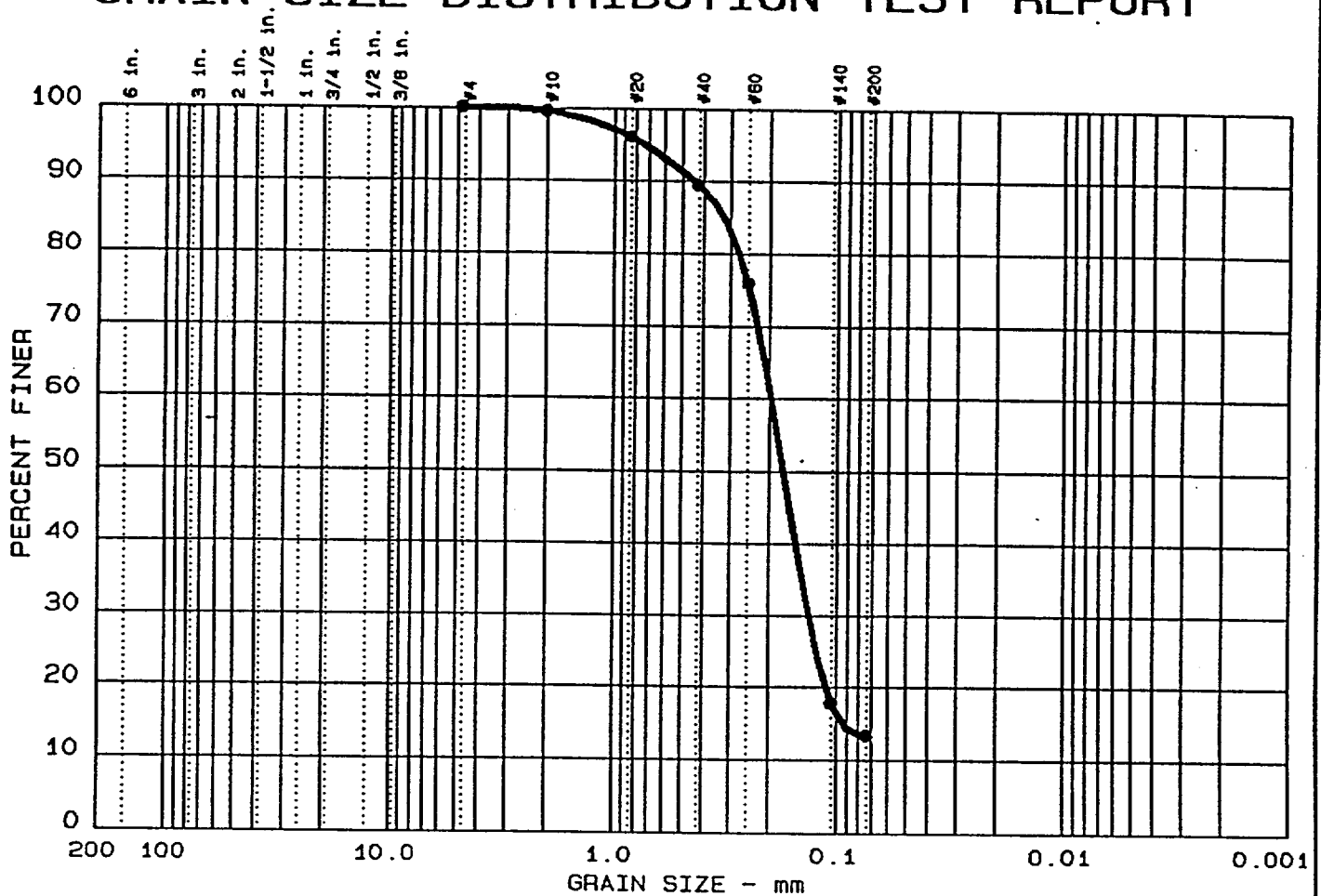
Remarks:

Tested by: *SC*
 Reviewed by: *HJ*

ASTM D422

Figure No. .

GRAIN SIZE DISTRIBUTION TEST REPORT



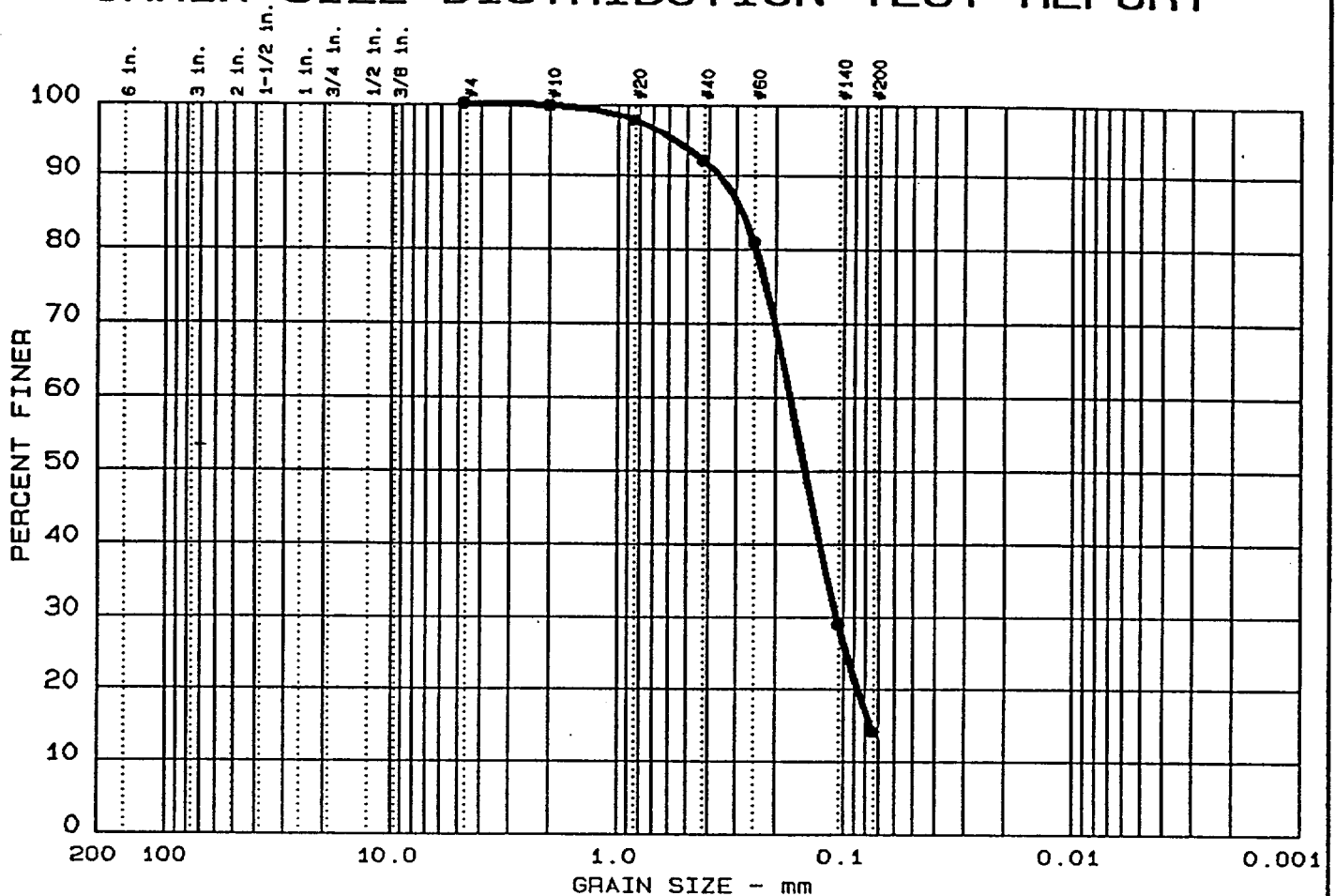
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 5	0.0	0.0	85.6	13.4	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.32	0.20	0.17	0.132	0.0938			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.2)

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-79 @ 125-126.5 Ft. Date: April 15, 1998	Remarks: Tested by: <i>SC</i> Reviewed by: <i>HF</i> ASTM D422 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



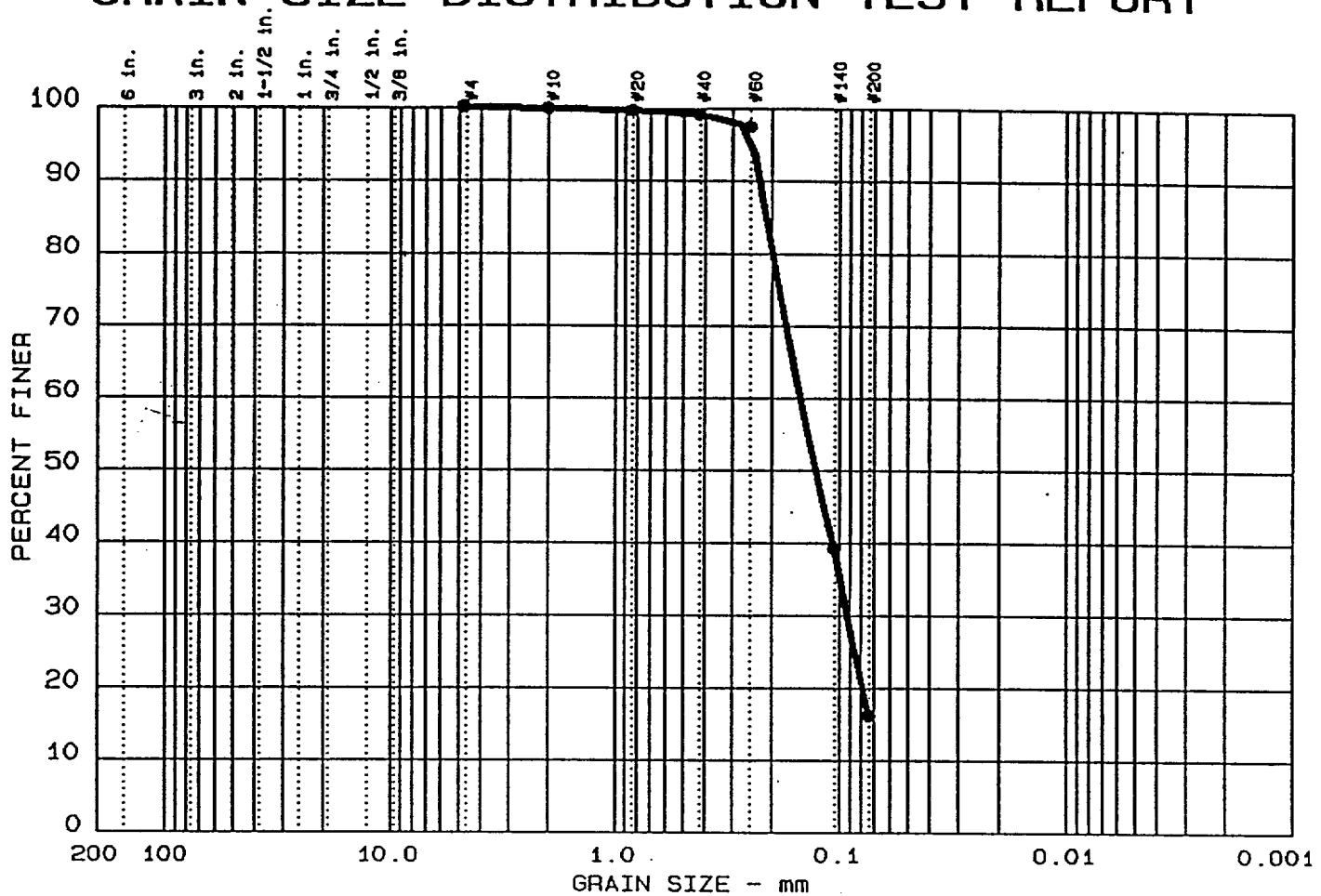
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 6	0.0	0.0	85.8	14.2	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.28	0.17	0.15	0.107	0.0757			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.1)

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-80 @ 126.5-128.0 Ft. Date: April 15, 1998	Remarks: Tested by: SC Reviewed by: HP ASTM D422 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 10	0.0	0.0	83.8	16.2	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.21	0.15	0.13	0.092				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-82 @ 129.5-131 Ft.

Date: April 15, 1998

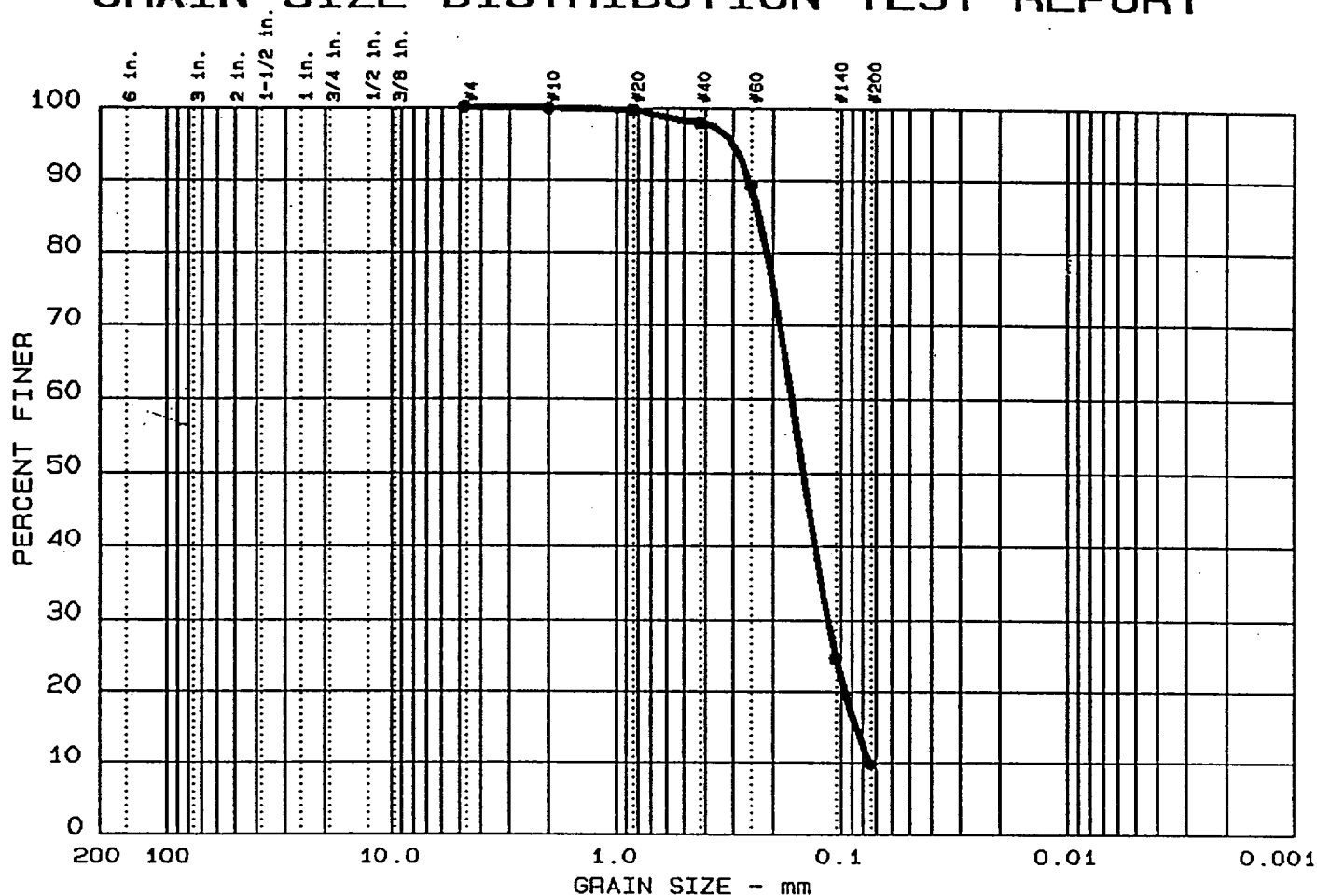
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC*
 Reviewed by: *HO*
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 12	0.0	0.0	90.3	9.7	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.23	0.16	0.15	0.114	0.0854	0.0744	1.06	2.2

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-84 @ 132.5-134 Ft.

Date: April 15, 1998

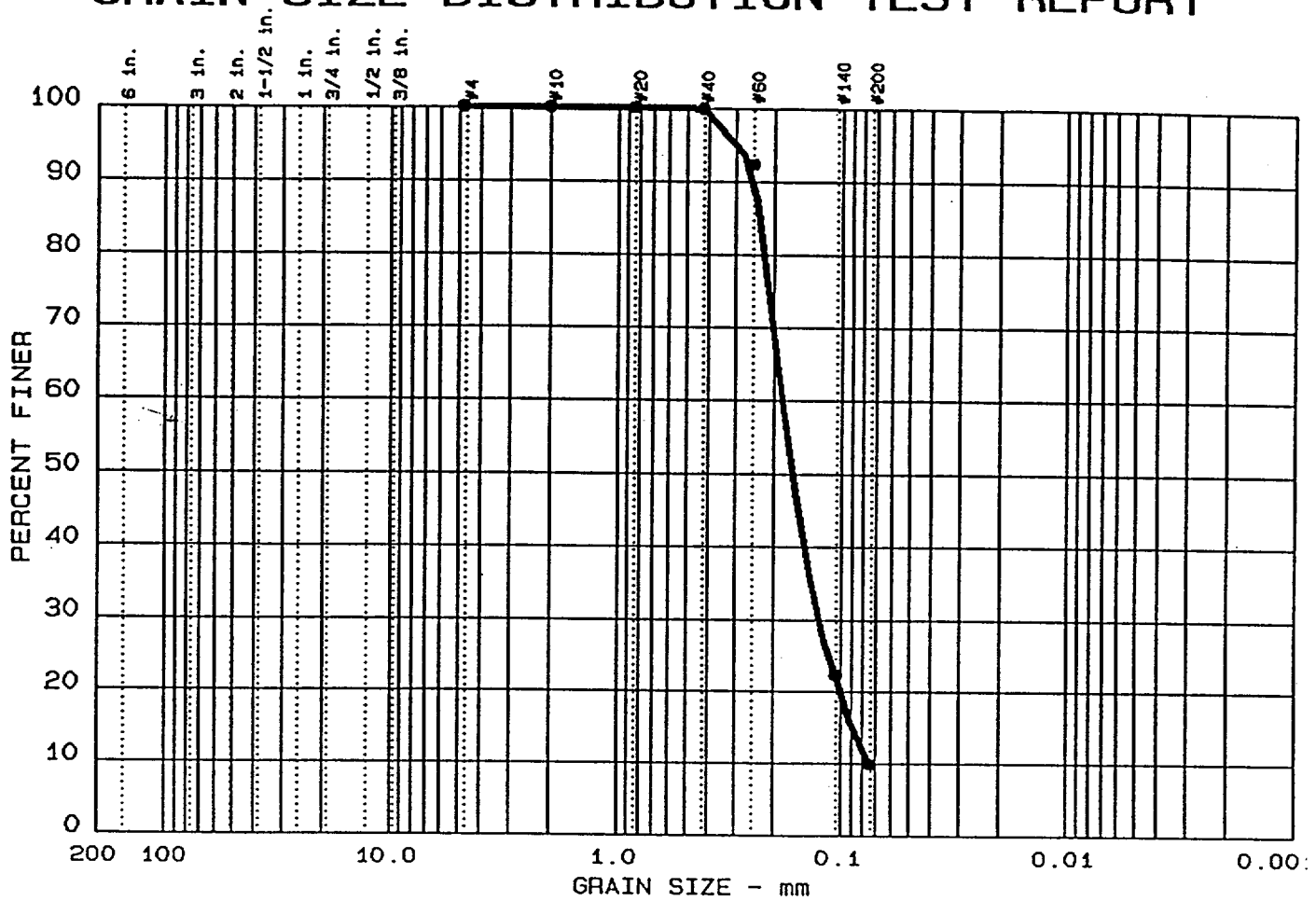
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC*
 Reviewed by: *149*
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 10	0.0	0.0	90.1	9.9	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.23	0.18	0.16	0.126	0.0889			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-85 @ 134-135.5 Ft.

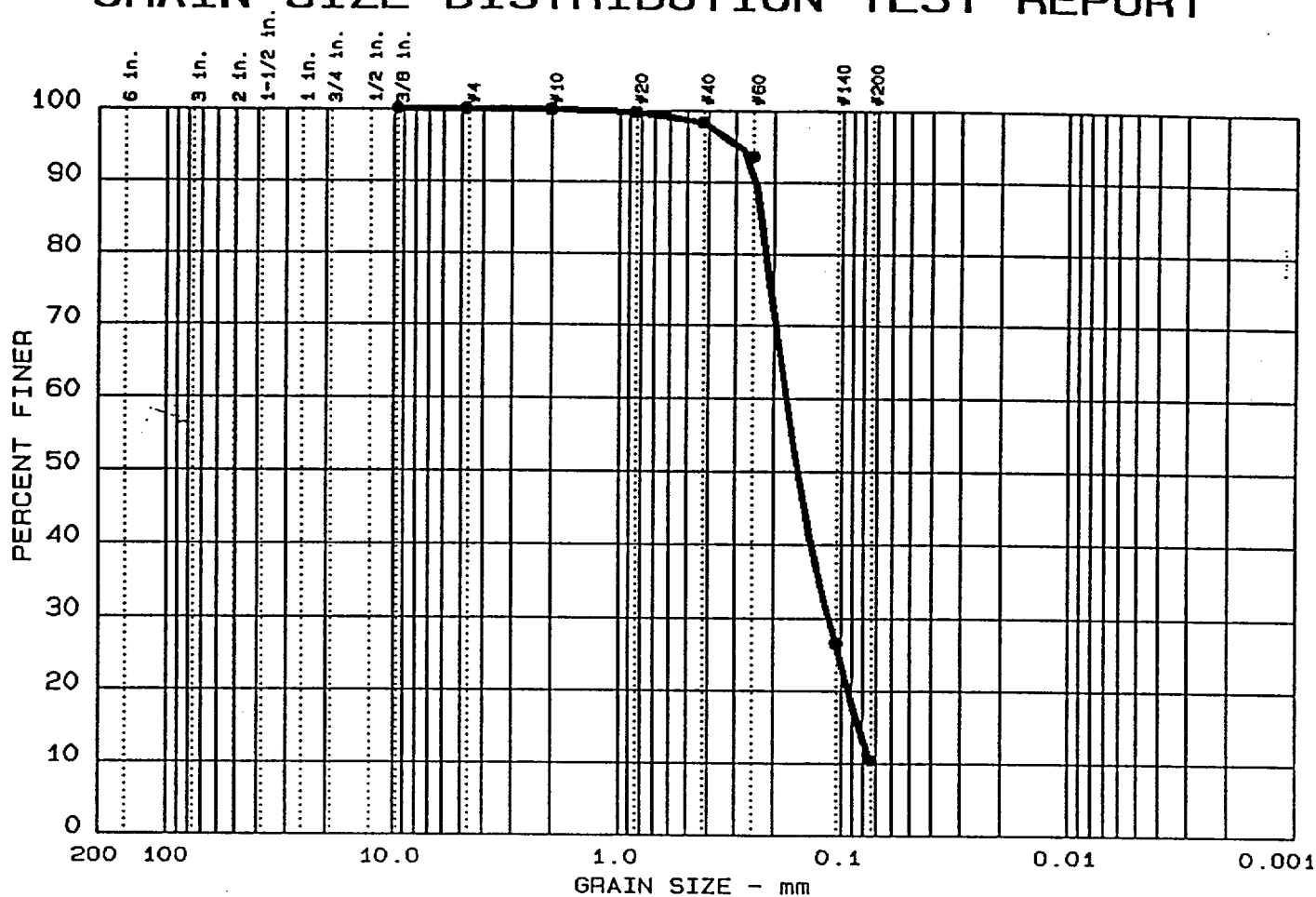
Date: April 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SC*
 Reviewed by: *HB*
 A STM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 11	0.0	0.0	89.6	10.4	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.23	0.18	0.16	0.114	0.0832			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

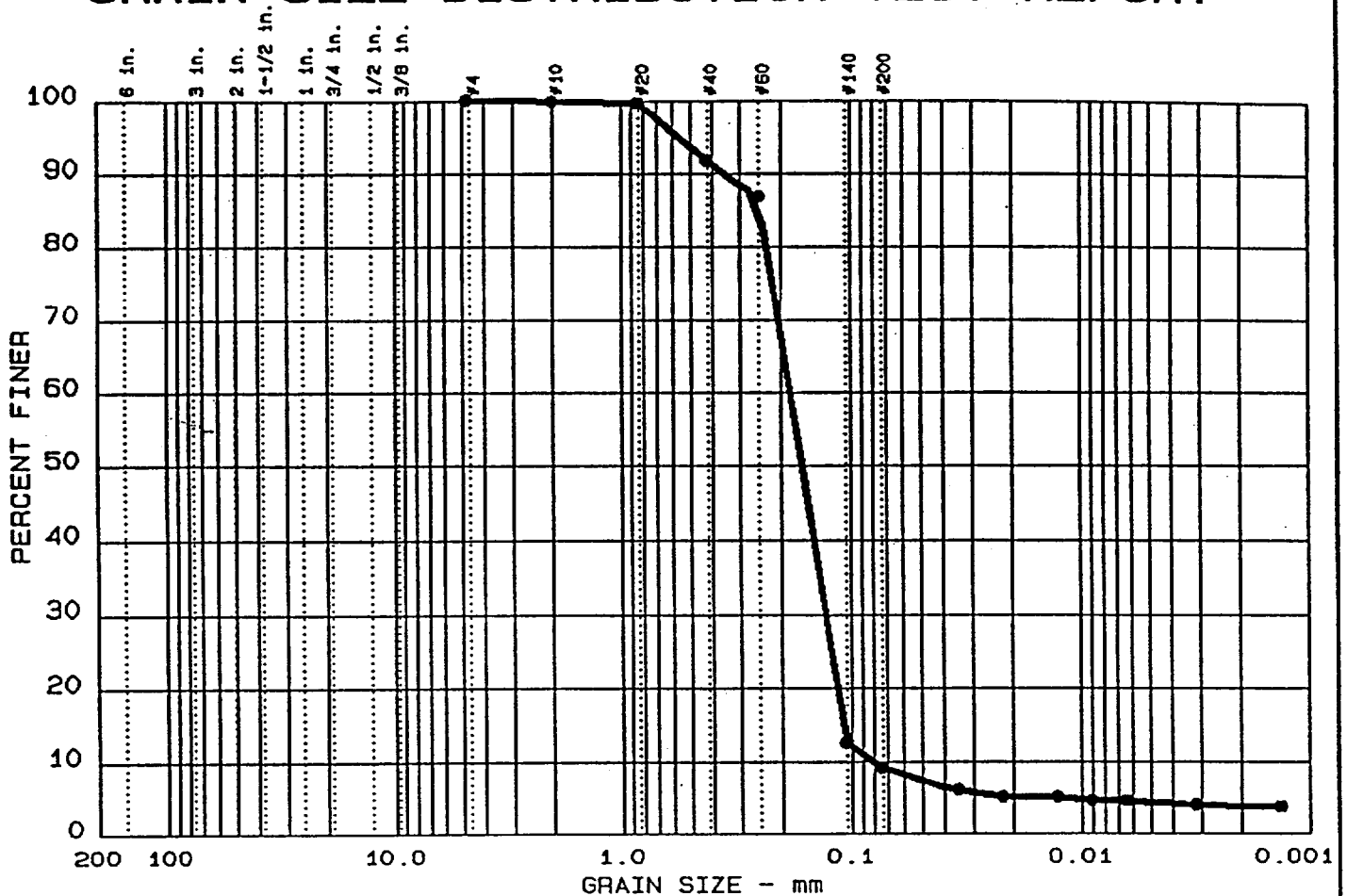
Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-86 @ 135.5-137 Ft.
 Date: April 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HB
 ASTM D 422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
19	0.0	0.0	90.8	4.8	4.4

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.24	0.18	0.16	0.129	0.1080	0.0801	1.13	2.3

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 Location: FB-6 SS-87 @ 137-138.5 Ft.

Date: April 9, 1998

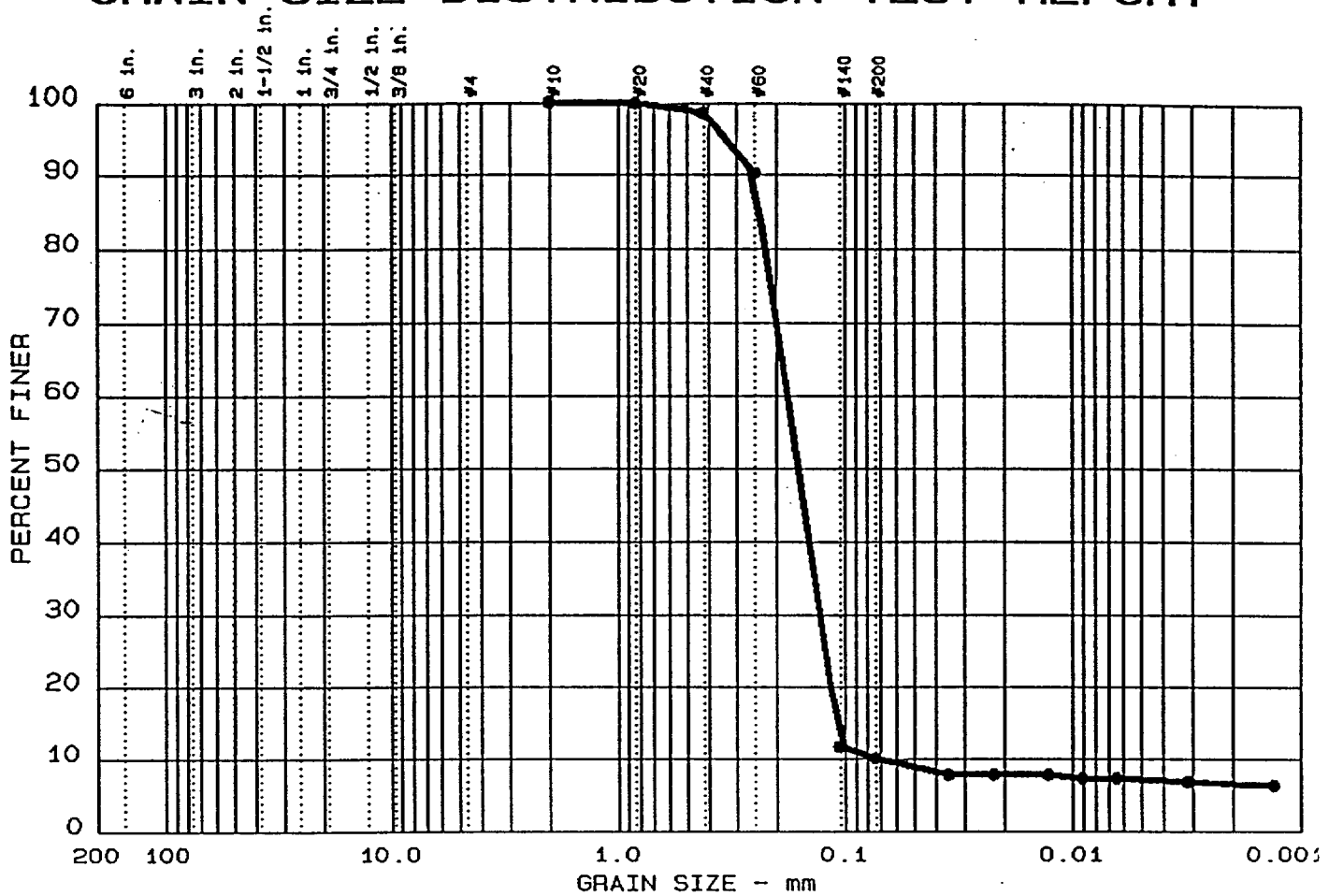
GRAIN SIZE DISTRIBUTION TEST REPORT
 LAW ENGINEERING, INC.

Remarks:

Tested by: SC
 Reviewed by: HB
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 13	0.0	0.0	89.9	3.0	7.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.24	0.18	0.16	0.128	0.1089	0.0711	1.30	2.5

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SP-SM	A-3

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-88 @ 138.5-140 Ft.

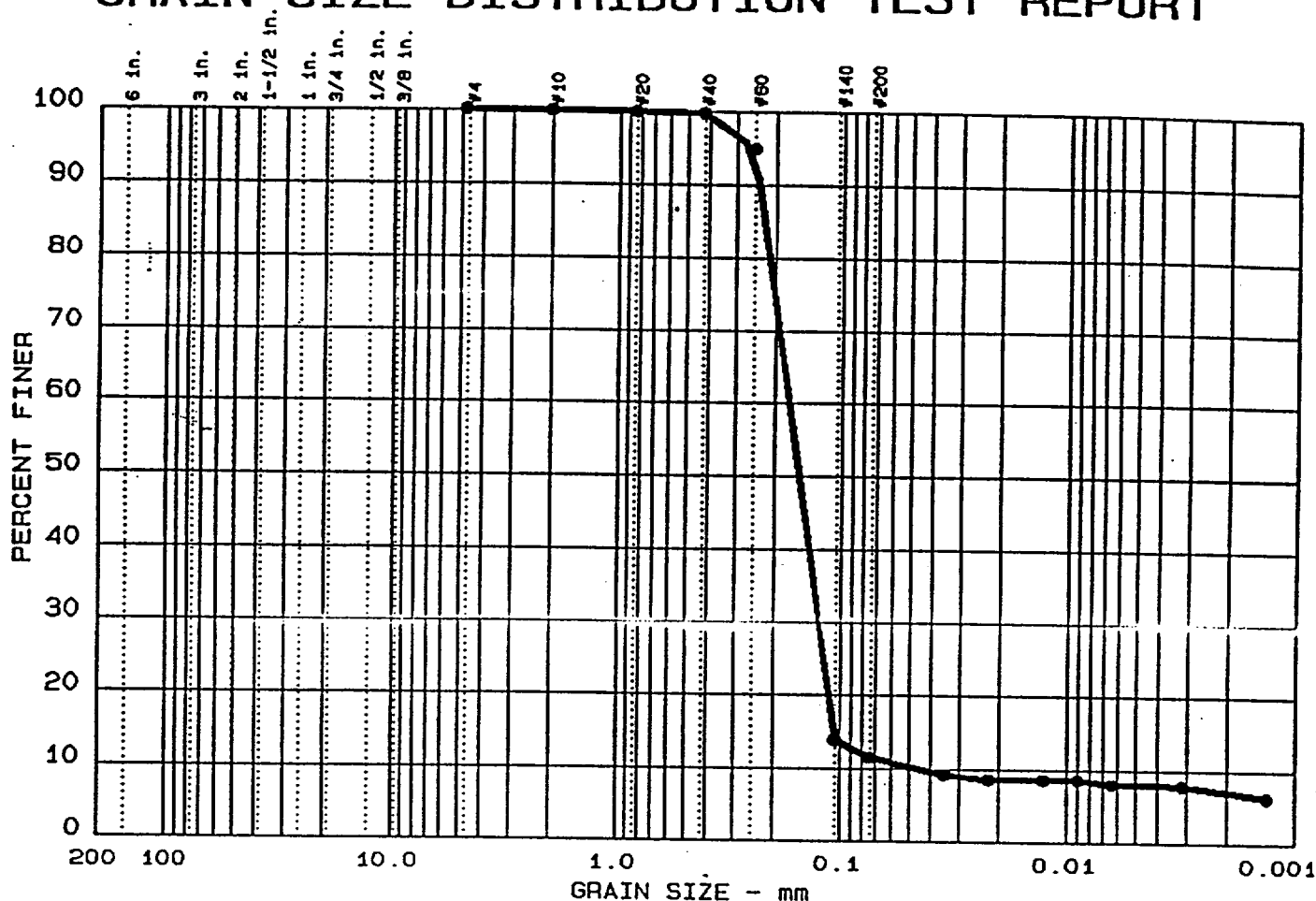
Date: April 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SC*
 Reviewed by: *HB*
 ASTM D422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 20	0.0	0.0	88.5	3.6	7.9

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• NL	NP	0.22	0.17	0.15	0.125	0.1062	0.0448	2.02	3.8

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Poorly Graded Sand with Silt	SP-SM	A-2-4 (0.3)

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-89 @ 140-141.5 Ft. Date: April 9, 1998	Remarks: Tested by: SC Reviewed by: HJ ASTM D 422 & ASTM D 4318 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve is plotted on a semi-logarithmic scale. The Y-axis represents Percent Finer (0 to 100), and the X-axis represents Grain Size in mm (200 to 0.001). The curve shows a sharp drop between 0.425 mm and 0.075 mm, indicating a well-graded soil.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
4.75	100
2.5	100
1.18	100
0.85	100
0.60	100
0.425	98
0.30	95
0.25	90
0.20	80
0.15	60
0.125	40
0.106	30
0.085	25
0.075	20
0.060	18
0.050	17
0.0425	16
0.0375	15
0.030	14
0.025	13
0.020	13
0.015	13
0.0125	13
0.0106	13
0.0085	12
0.0075	12
0.0060	12
0.0050	12
0.00425	12
0.00375	12
0.0030	12
0.0025	12
0.0020	12
0.0015	12
0.00125	12
0.00106	12
0.00085	12
0.00075	12
0.00060	12
0.00050	12
0.000425	12
0.000375	12
0.00030	12
0.00025	12
0.00020	12
0.00015	12
0.000125	12
0.000106	12
0.000085	12
0.000075	12
0.000060	12
0.000050	12
0.0000425	12
0.0000375	12
0.000030	12
0.000025	12
0.000020	12
0.000015	12
0.0000125	12
0.0000106	12
0.0000085	12
0.0000075	12
0.0000060	12
0.0000050	12
0.00000425	12
0.00000375	12
0.0000030	12
0.0000025	12
0.0000020	12
0.0000015	12
0.00000125	12
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0.00000075	12
0.00000060	12
0.00000050	12
0.000000425	12
0.000000375	12
0.00000030	12
0.00000025	12
0.00000020	12
0.00000015	12
0.000000125	12
0.000000106	12
0.000000085	12
0.000000075	12
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0.000000050	12
0.0000000425	12
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0.0000000030	12
0.0000000025	12
0.0000000020	12
0.0000000015	12
0.00000000125	12
0.00000000106	12
0.00000000085	12
0.00000000075	12
0.00000000060	12
0.00000000050	12
0.000000000425	12
0.000000000375	12
0.00000000030	12
0.00000000025	12
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0.000000000075	12
0.000000000060	12
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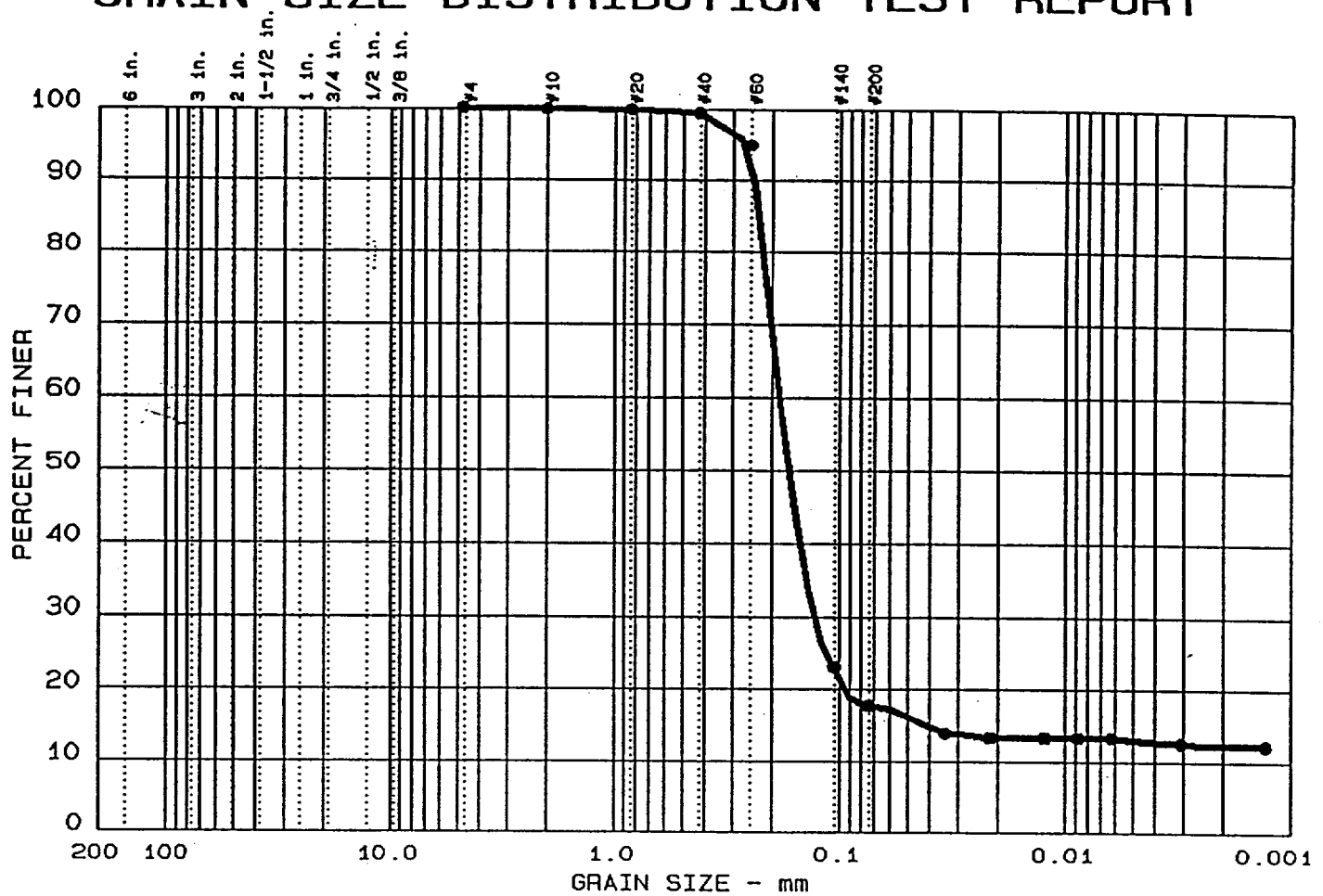
Project No.: 50161-7-0108 Task 16
Project: APSF Confirmatory Testing
● Location: FB-6 SS-90 @ 141.5-143 Ft.

Date: April 9, 1998

LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 7	0.0	0.0	82.2	4.7	13.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● 34	8	0.23	0.18	0.17	0.129	0.0404			

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 ● Location: FB-6 SS-91 @ 143-144.5 Ft.

Date: April 13, 1998

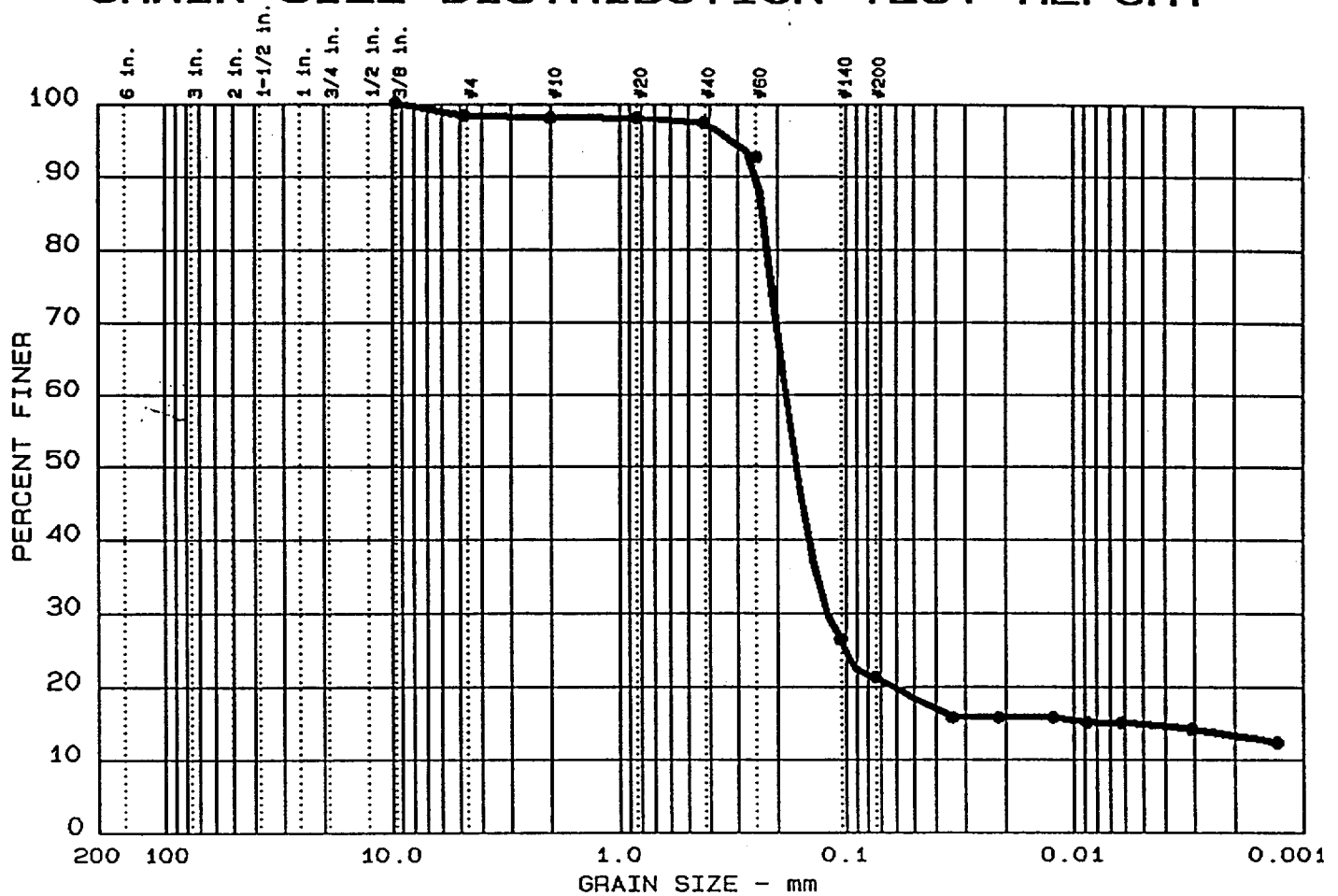
Remarks:

Tested by: SC
 Reviewed by: HO
 ASTM D422
 &
 ASTM D 4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
 LAW ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION TEST REPORT



Grain size distribution plot for Test No. 100-1. The graph shows Percent Finer (0-100) versus Grain Size in mm (log scale, 200 to 0.001). The curve starts at 100% finer for 200 mm and drops sharply between 0.425 mm and 0.075 mm, leveling off at approximately 12% finer for 0.075 mm and below. Sieve sizes are marked at the top: 6 in., 3 in., 2 in., 1 1/2 in., 1 in., 3/4 in., 1/2 in., 3/8 in., #4, #10, #20, #40, #60, #140, #200.

Sieve Size	Grain Size (mm)	Percent Finer (%)
6 in.	150	100
3 in.	75	100
2 in.	50	100
1 1/2 in.	37.5	100
1 in.	25	100
3/4 in.	18.75	100
1/2 in.	12.5	100
3/8 in.	9.375	100
#4	4.75	100
#10	2.0	100
#20	0.85	98
#40	0.425	95
#60	0.25	92
#140	0.106	22
#200	0.075	18
	0.06	15
	0.0425	15
	0.03	15
	0.025	14
	0.02	13
	0.015	12
	0.0125	12
	0.01	12
	0.0075	12
	0.006	12
	0.00425	12
	0.003	12
	0.0025	12
	0.002	12
	0.0015	12
	0.00125	12
	0.001	12

[illegible]

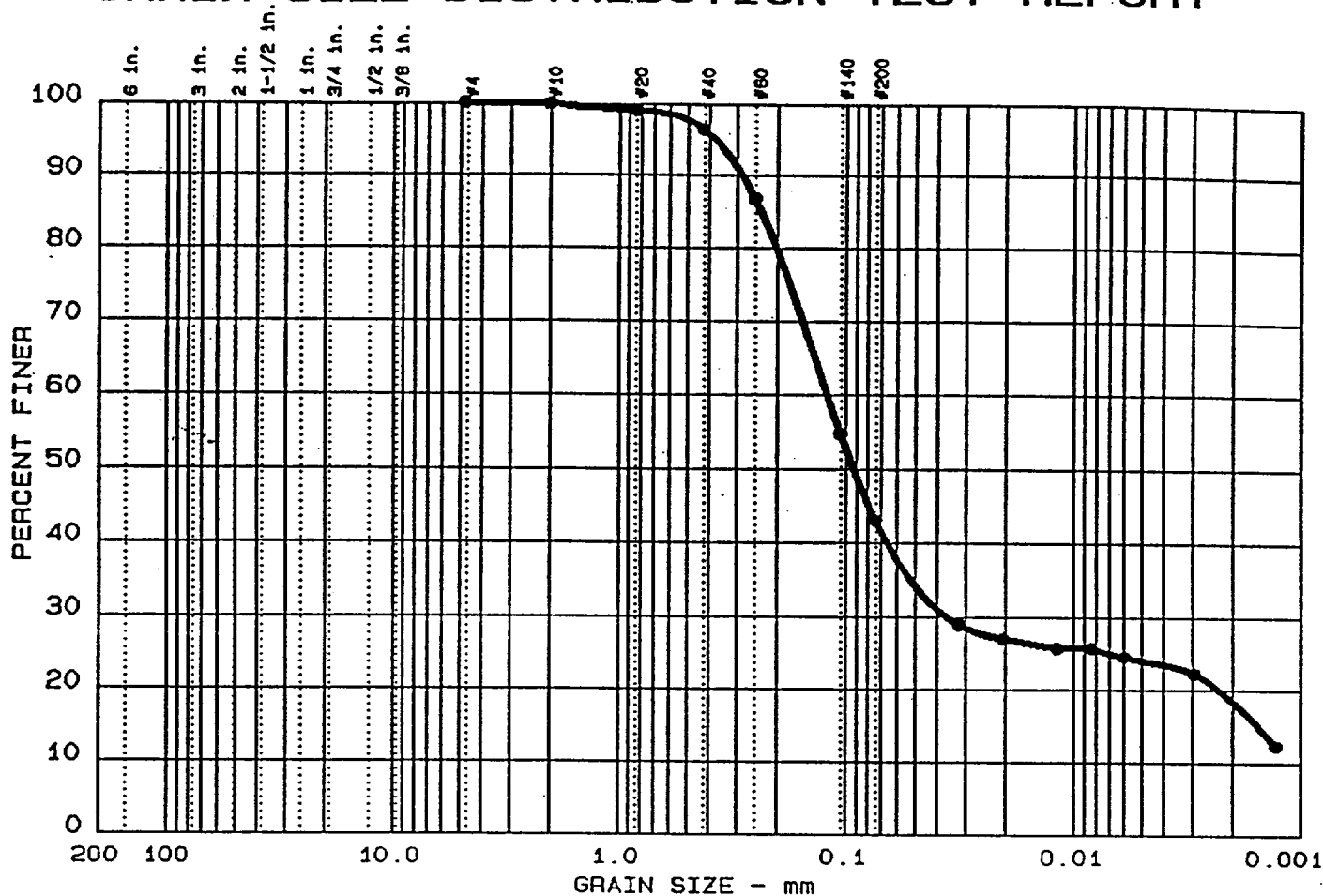
Project No.: 50161-7-0108 Task 16
Project: APSF Confirmatory Testing
◆ Location: FB-6 SS-93 @ 146-147.5 Ft.

Date: April 9, 1998

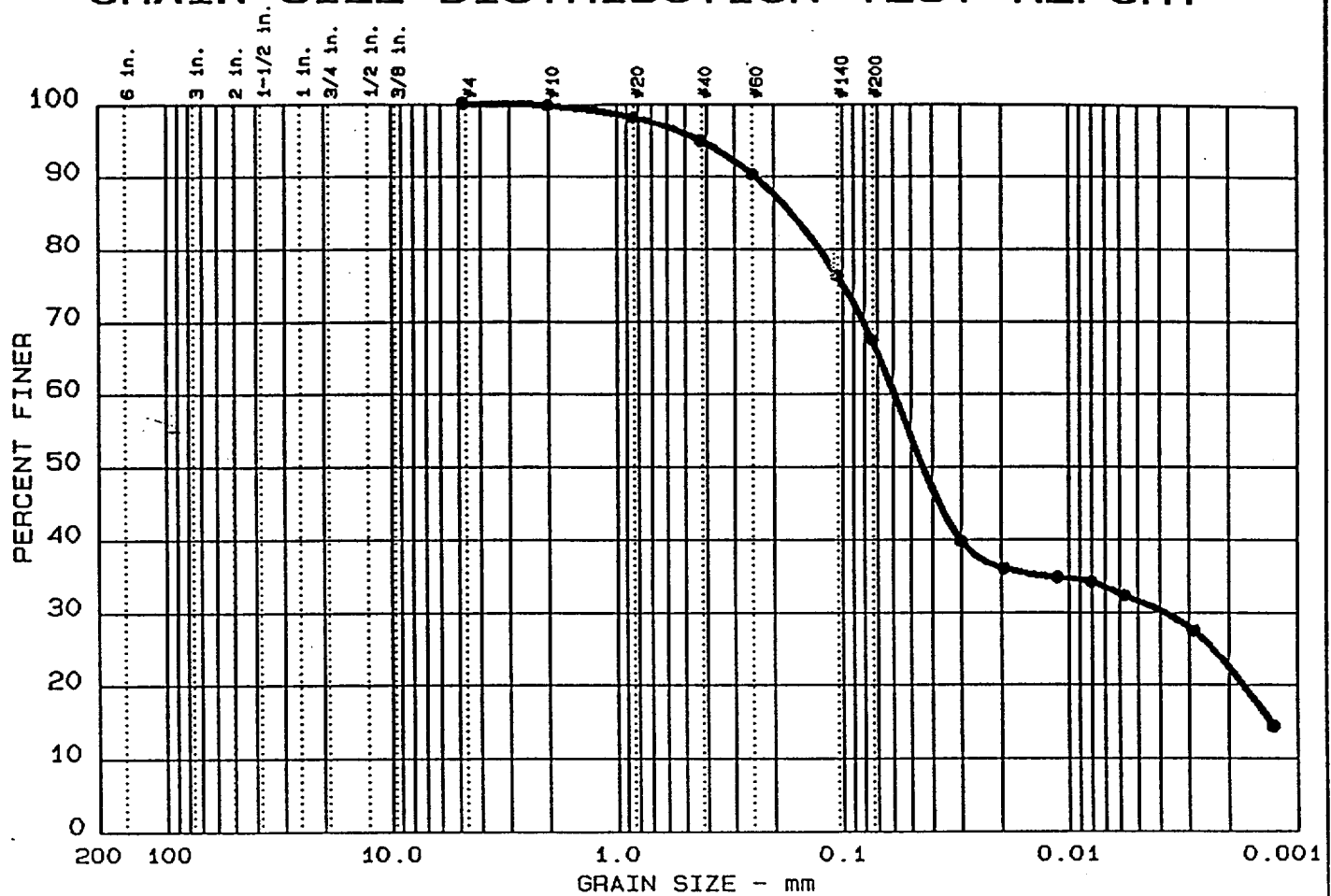
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 16	0.0	0.0	32.6	35.9	31.5

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.17		0.04	0.004	0.0013			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Sandy Silt	ML	A-4 (0.0)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-95 @ 149-150.5 Ft.

Date: April 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

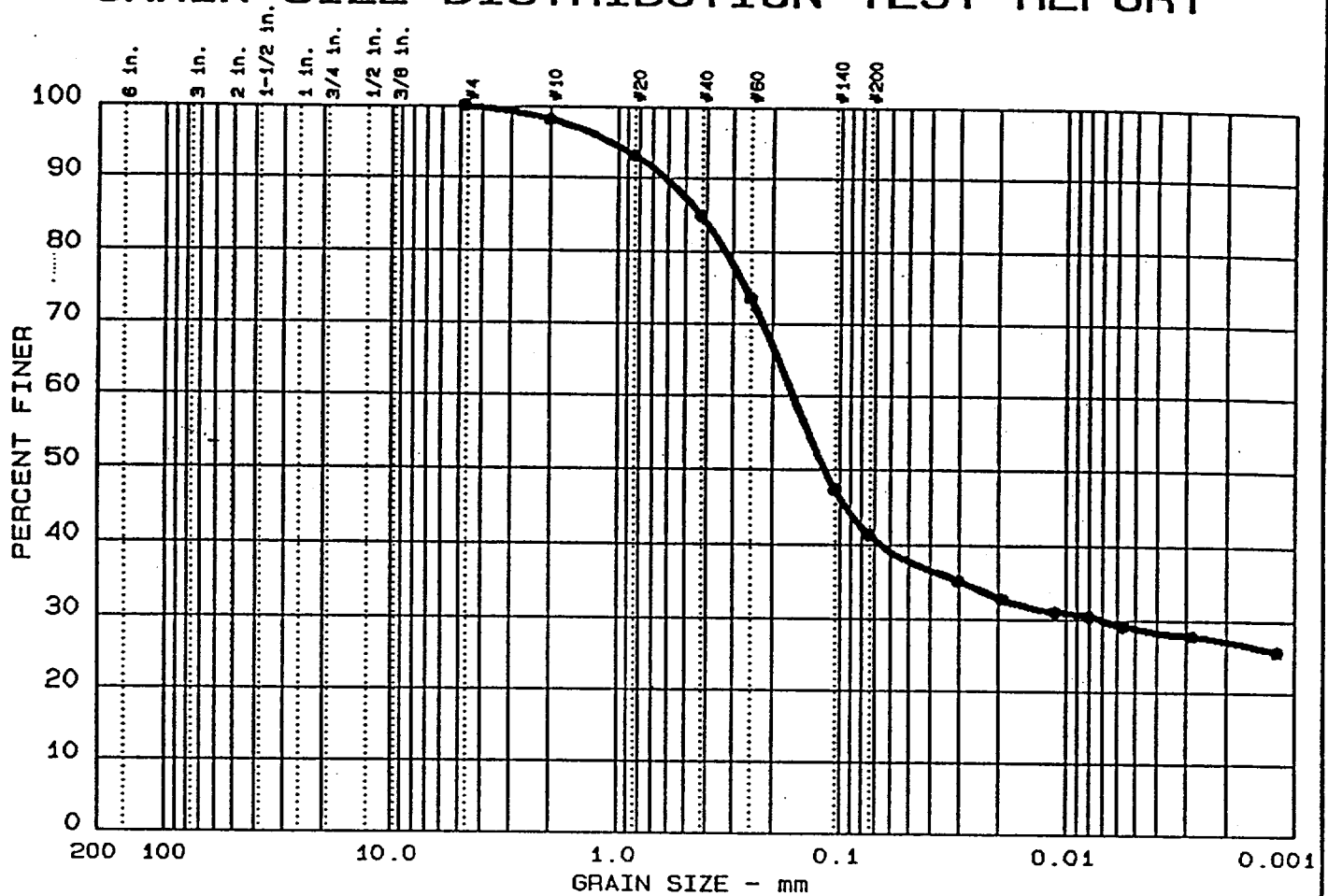
Tested by: SC

Reviewed by: HB

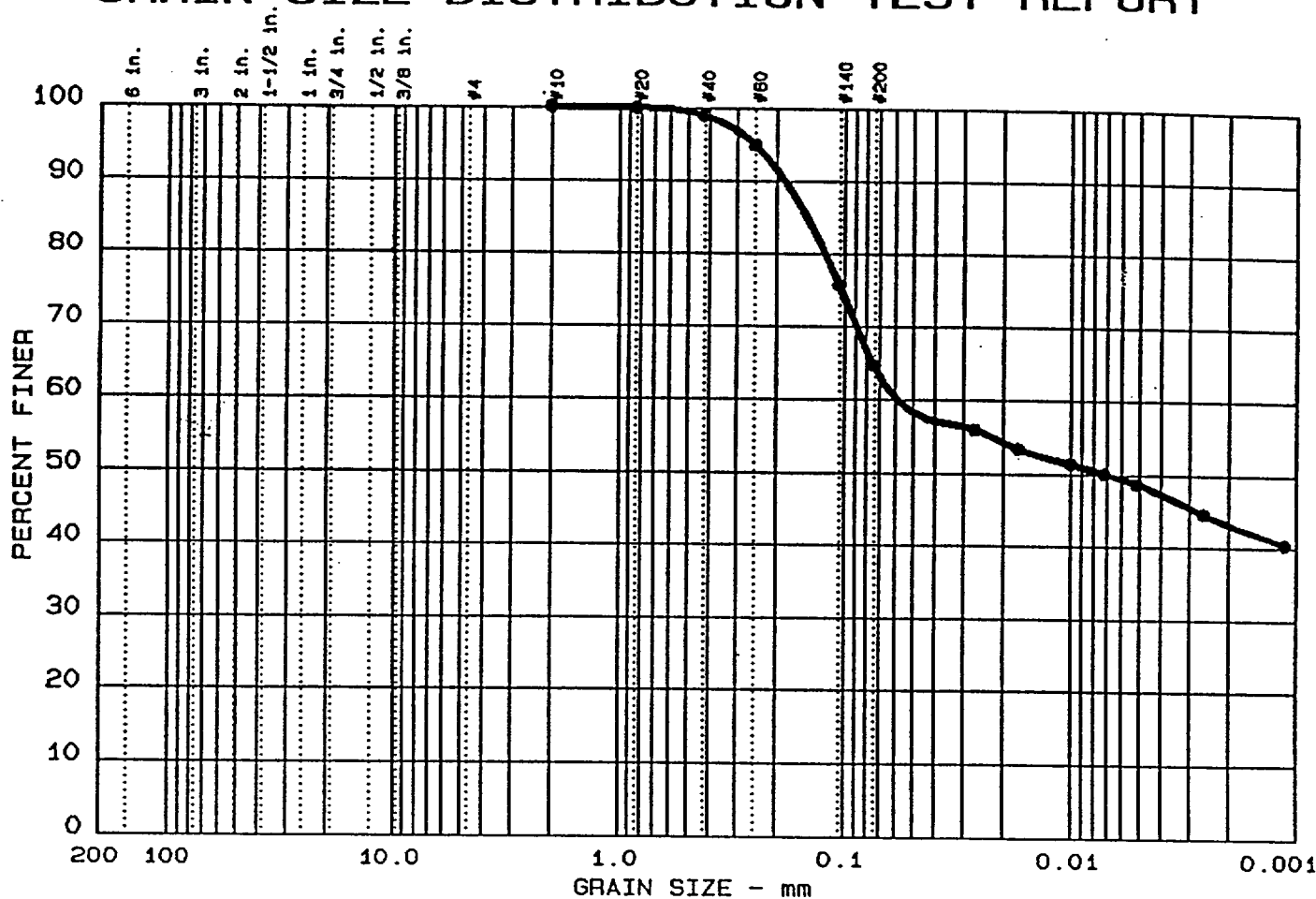
ASTM D 422

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



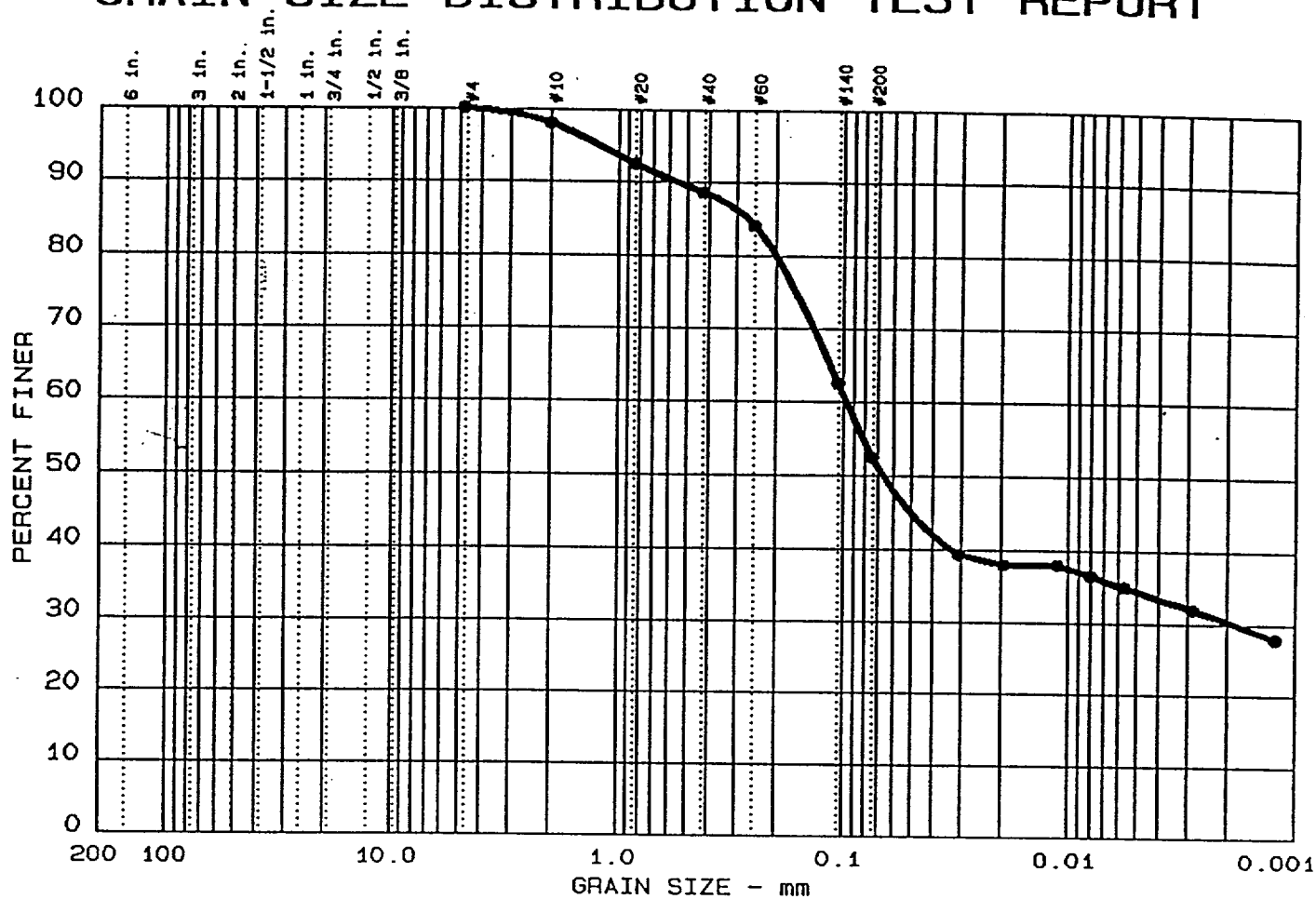
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 3	0.0	0.0	35.4	16.1	48.5

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.15		0.01					

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Sandy Silt	ML	A-4 (0.0)

Project No.: 50161-7-0108 Task 16 Project: APSF Confirmatory Testing • Location: FB-6 SS-97 @ 152-153.5 Ft. Date: April 9, 1998	Remarks: Tested by: SC Reviewed by: HB ASTM D 422
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 9	0.0	0.0	47.6	18.1	34.3

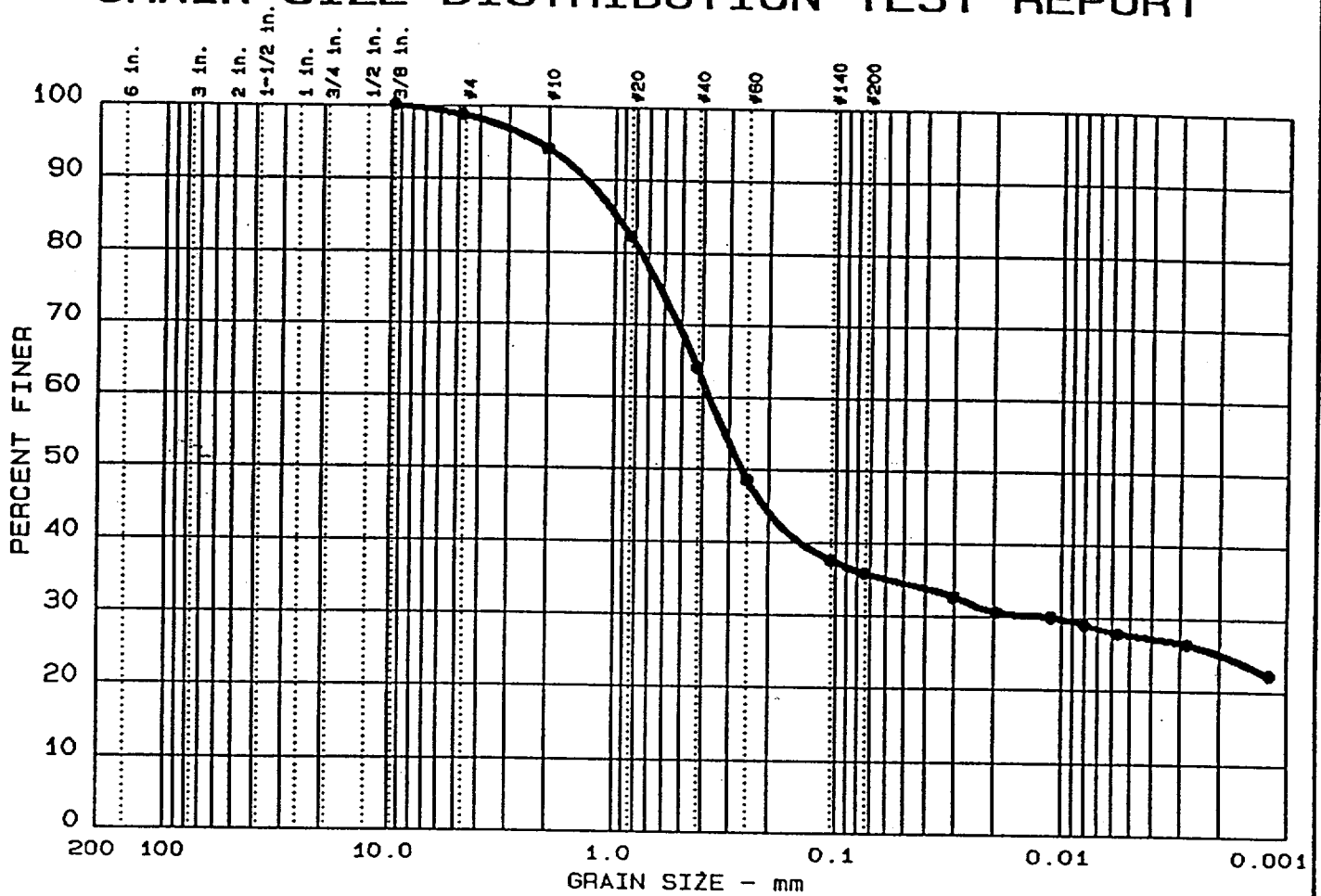
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● 61	39	0.26	0.10	0.07	0.002				

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Sandy Fat Clay	CH	A-7-6 (15.9)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 ● Location: FB-6 SS-98 @ 153.5-155 Ft.
 Date: April 13, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HB
 ASTM D422
 &
 ASTM D4318
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 15	0.0	1.3	62.9	8.2	27.6

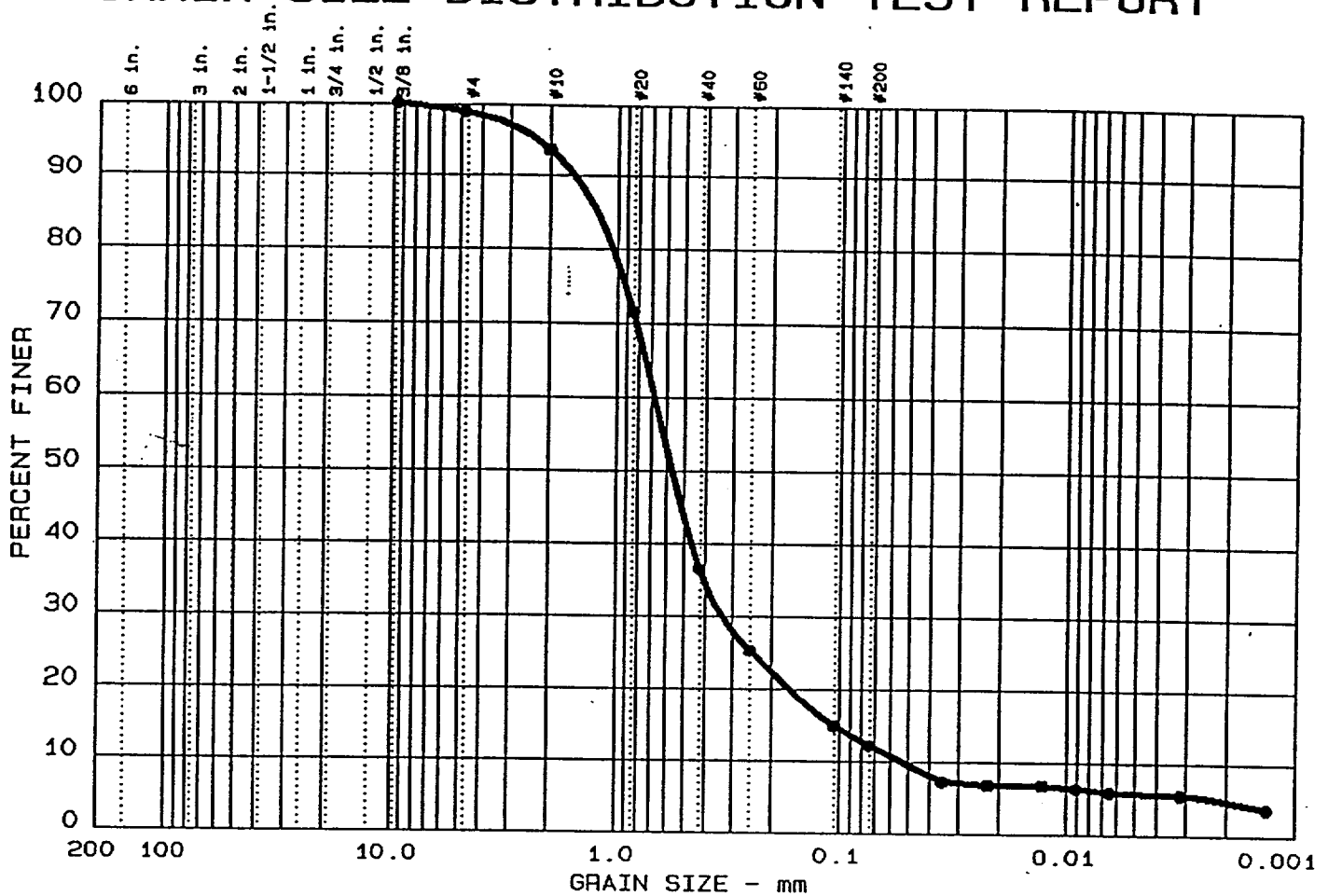
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 63	40	0.97	0.37	0.26	0.012				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Clayey Sand	SC	A-7-6 (6.6)

Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-99 @ 155-156.5 Ft.
 Date: April 9, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HB
 ASTM D422
 &
 ASTM D4318
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 17	0.0	1.1	86.7	6.4	5.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		1.22	0.67	0.56	0.333	0.1053	0.0522	3.16	12.9

MATERIAL DESCRIPTION	USCS	AASHTO
• Brown Silty Sand	SM	A-1-b

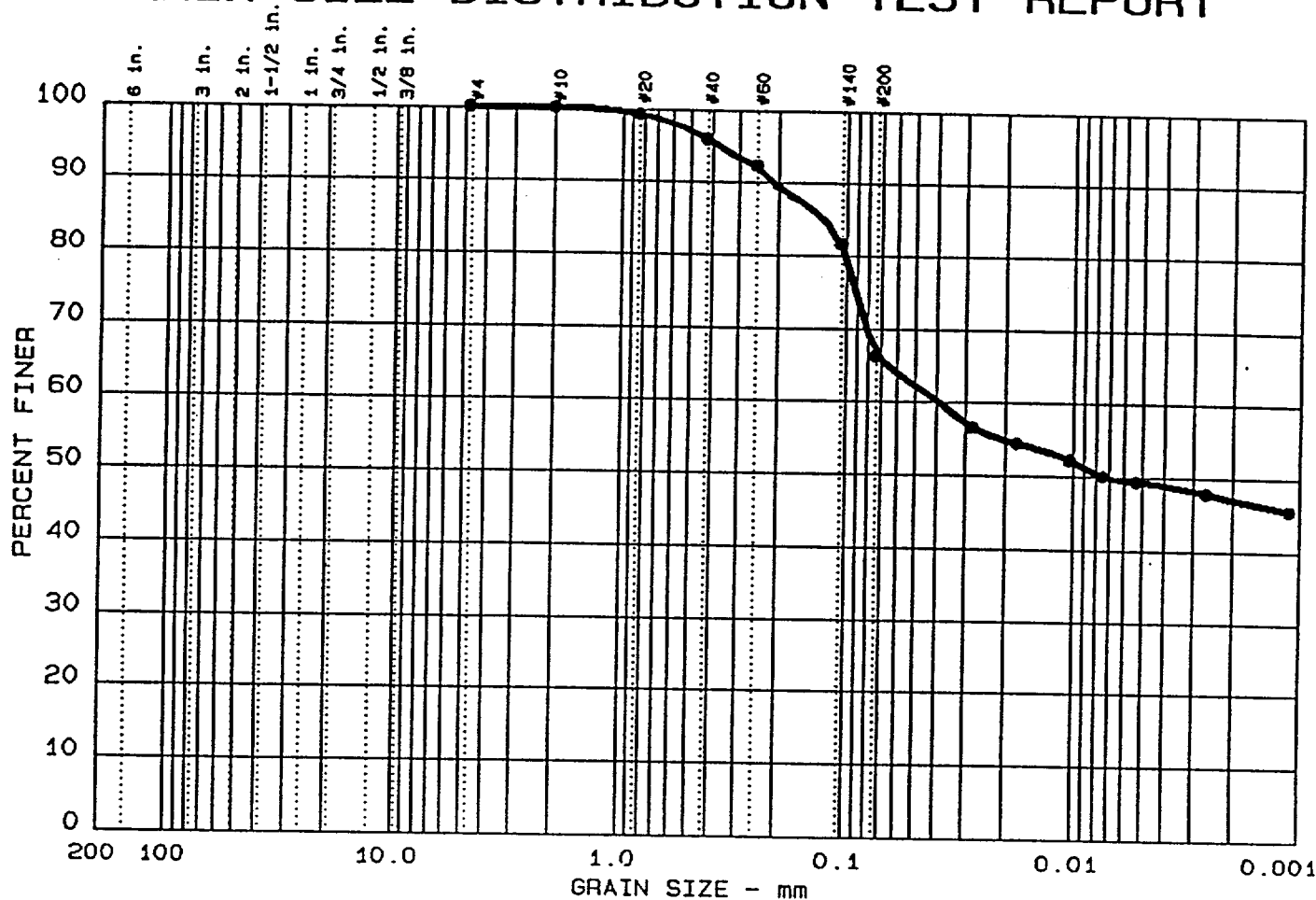
Project No.: 50161-7-0108 Task 16
 Project: APSF Confirmatory Testing
 • Location: FB-6 SS-100 @ 156.5-158 Ft.
 Date: April 9, 1998

Remarks:
 Tested by: SC
 Reviewed by: HB
 ASTM D422

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
7	0.0	0.0	33.8	16.9	49.3

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
68	32	0.12		0.01					

MATERIAL DESCRIPTION	USCS	AASHTO
Red Brown & Tan Sandy Elastic Silt	MH	A-7-5 (21.8)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-17 SS-5 @ 13-14.5 Ft.
 Date: June 19, 1998

Remarks:
 Tested by: *SCJ/TM*
 Reviewed by: *HB*
 Moisture Content = 27.7%
 ASTM D422, D4318 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

Grain size distribution test report graph showing Percent Finer vs Grain Size (mm). The curve starts at 100% finer for grain sizes down to approximately 2.0 mm, then drops sharply to about 28% finer at 0.075 mm, and continues to decrease gradually to about 17% finer at 0.006 mm.

Grain Size (mm)	Percent Finer (%)
2.0	100
1.0	100
0.6	100
0.425	95
0.25	85
0.15	75
0.075	28
0.0475	25
0.025	24
0.015	23
0.0075	20
0.006	17

[illegible]

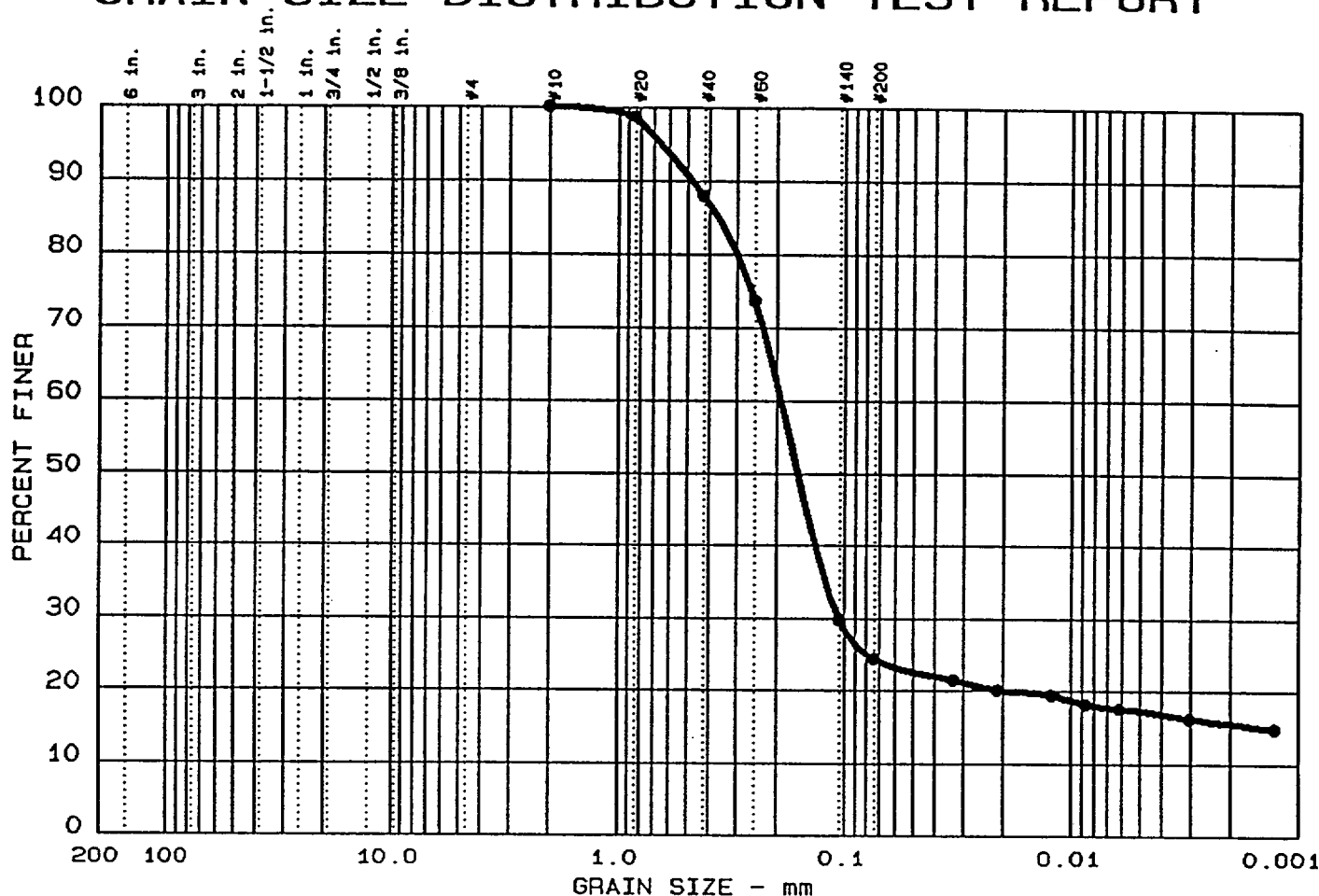
Project No.: 50161-7-0108 Task 21
Project: F-Area Northeast Expansion
◆ Location: FB-17 SS-7 @ 16.0-17.5 Ft.

Date: June 19, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



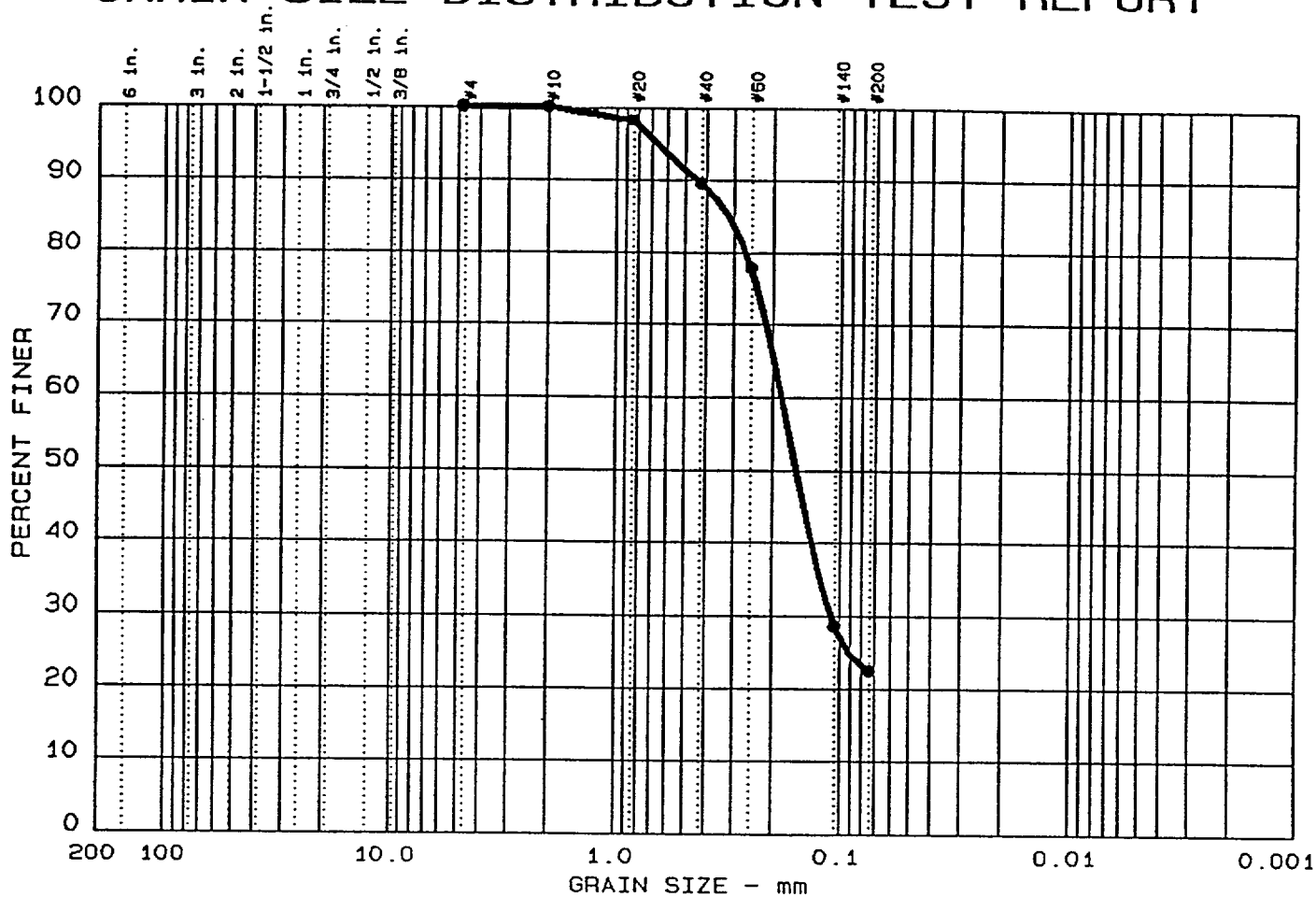
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 13	0.0	0.0	75.6	7.1	17.3

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 39	17	0.36	0.19	0.16	0.106	0.0013			

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown Clayey Sand	SC	A-2-6 (0.6)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-17 SS-9 @ 19-20.5 Ft. Date: June 19, 1998	Remarks: Tested by: <i>SC JTM</i> Reviewed by: <i>HB</i> Moisture Content = 20.1% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
1	0.0	0.0	77.5	22.5	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.31	0.18	0.16	0.109				

MATERIAL DESCRIPTION	USCS	AASHTO
Red Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-17 SS-11 @ 22-23.5 Ft.

Date: June 21, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC-JSM

Reviewed by: H

Moisture Content = 19.6%

ASTM D422 & D2216

Figure No.

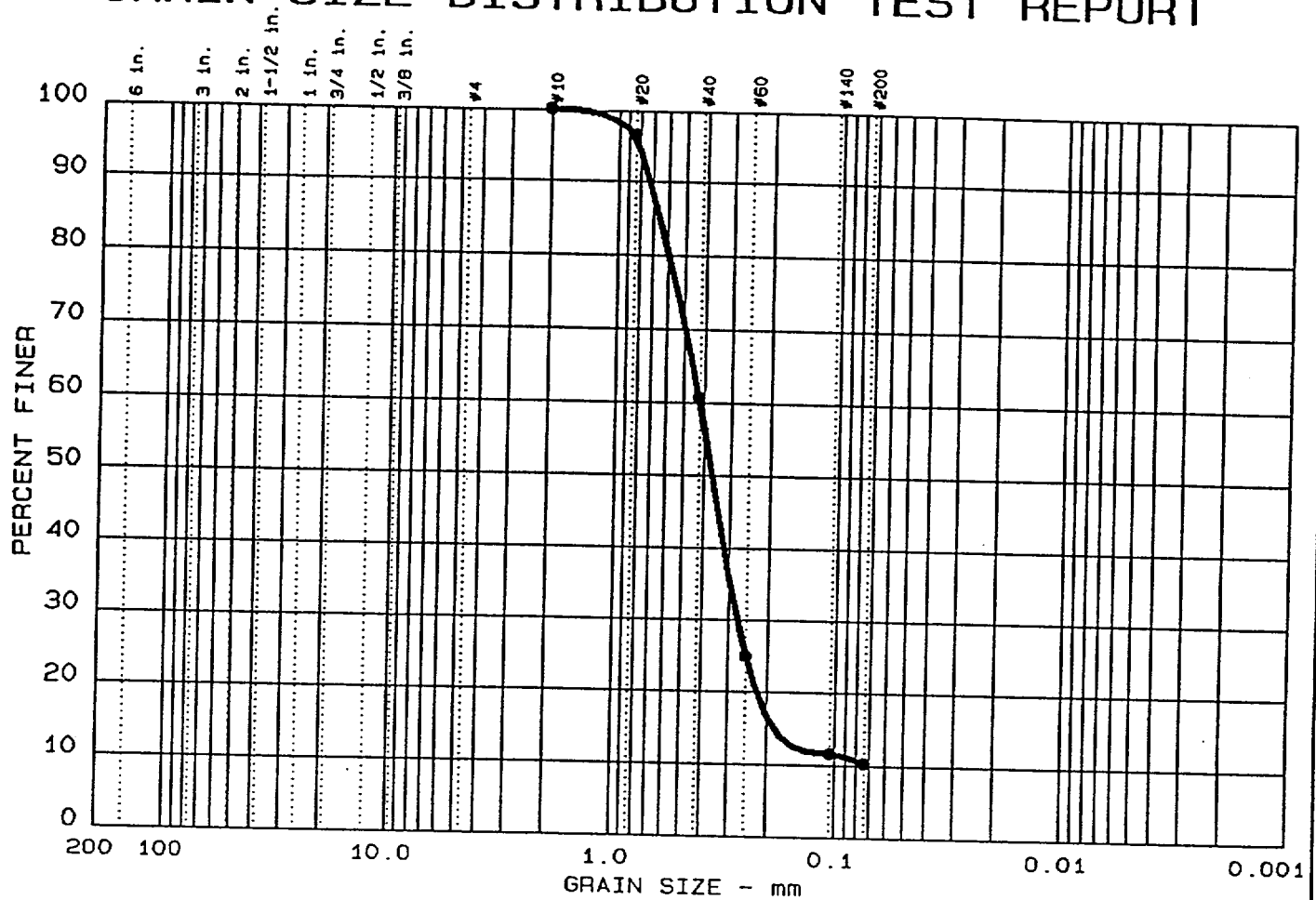
Grain size distribution plot for Test No. 10. The y-axis is 'PERCENT FINER' (0-100) and the x-axis is 'GRAIN SIZE - mm' (log scale, 200 to 0.001). The curve shows 100% finer for sizes down to 4.75 mm, then drops to ~25% finer at 0.075 mm, and levels off at ~10% finer for sizes below 0.075 mm.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
4.75	100
2.0	96
0.85	78
0.425	62
0.25	40
0.15	25
0.075	19
0.06	17
0.0425	16
0.03	15
0.025	14
0.015	13
0.0075	12
0.00425	12
0.0025	12
0.0015	11
0.00075	8

[illegible]

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion ● Location: FB-17 SS-13 @ 25.0-26.5 Ft.	Remarks: Tested by: <i>SC + JTM</i> Reviewed by: <i>H</i> Moisture Content = 19.1% ASTM D422, D4318 & D2216
Date: June 19, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 2	0.0	0.0	89.7	10.3	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.65	0.42	0.36	0.274	0.1849			

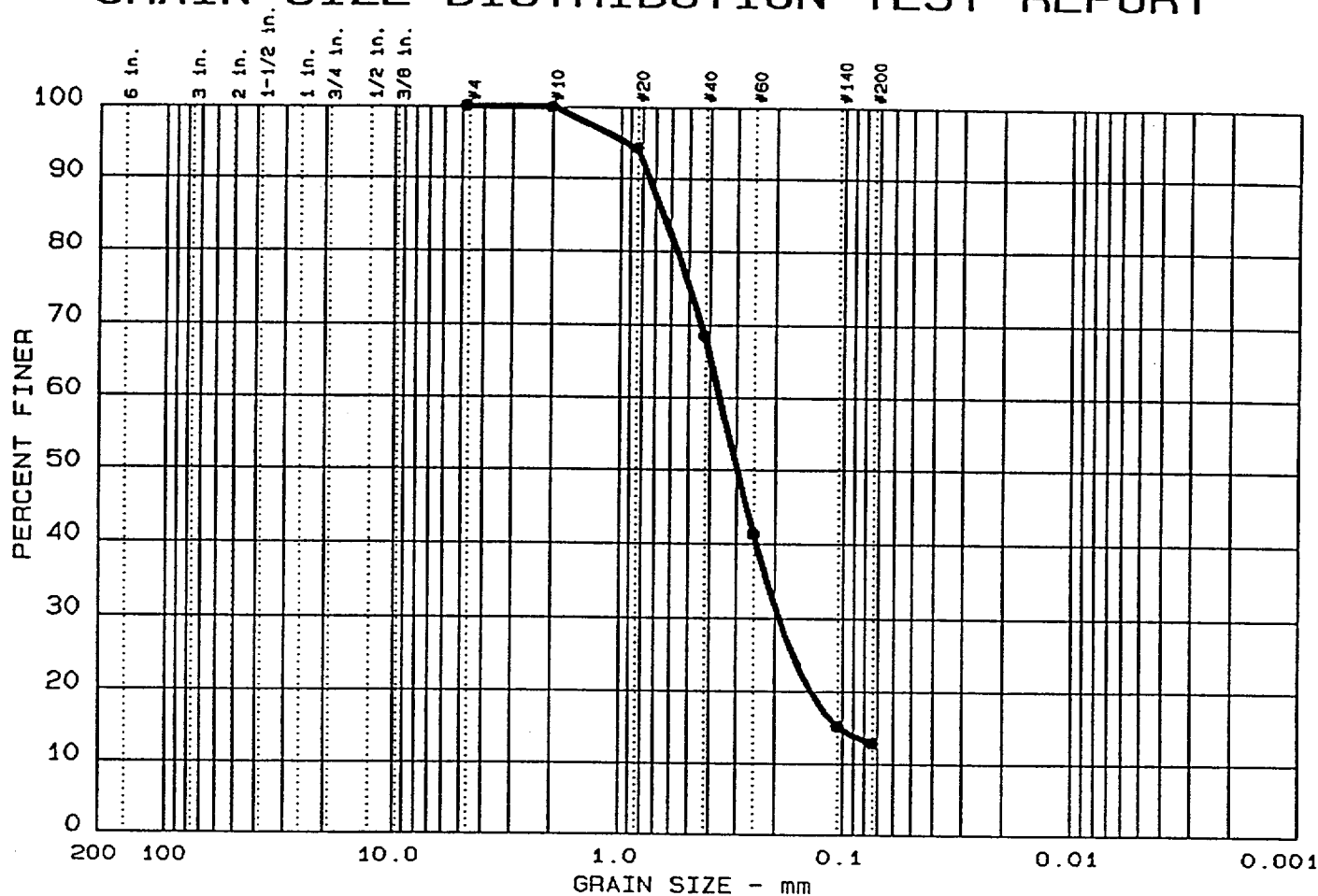
MATERIAL DESCRIPTION	USCS	AASHTO
• Tan=Red-Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-15 @ 28-29.5 Ft.
 Date: June 21, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SCJ/STW*
 Reviewed by: *HD*
 Moisture Content = 19.2%
 ASTM D422 & D2216
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



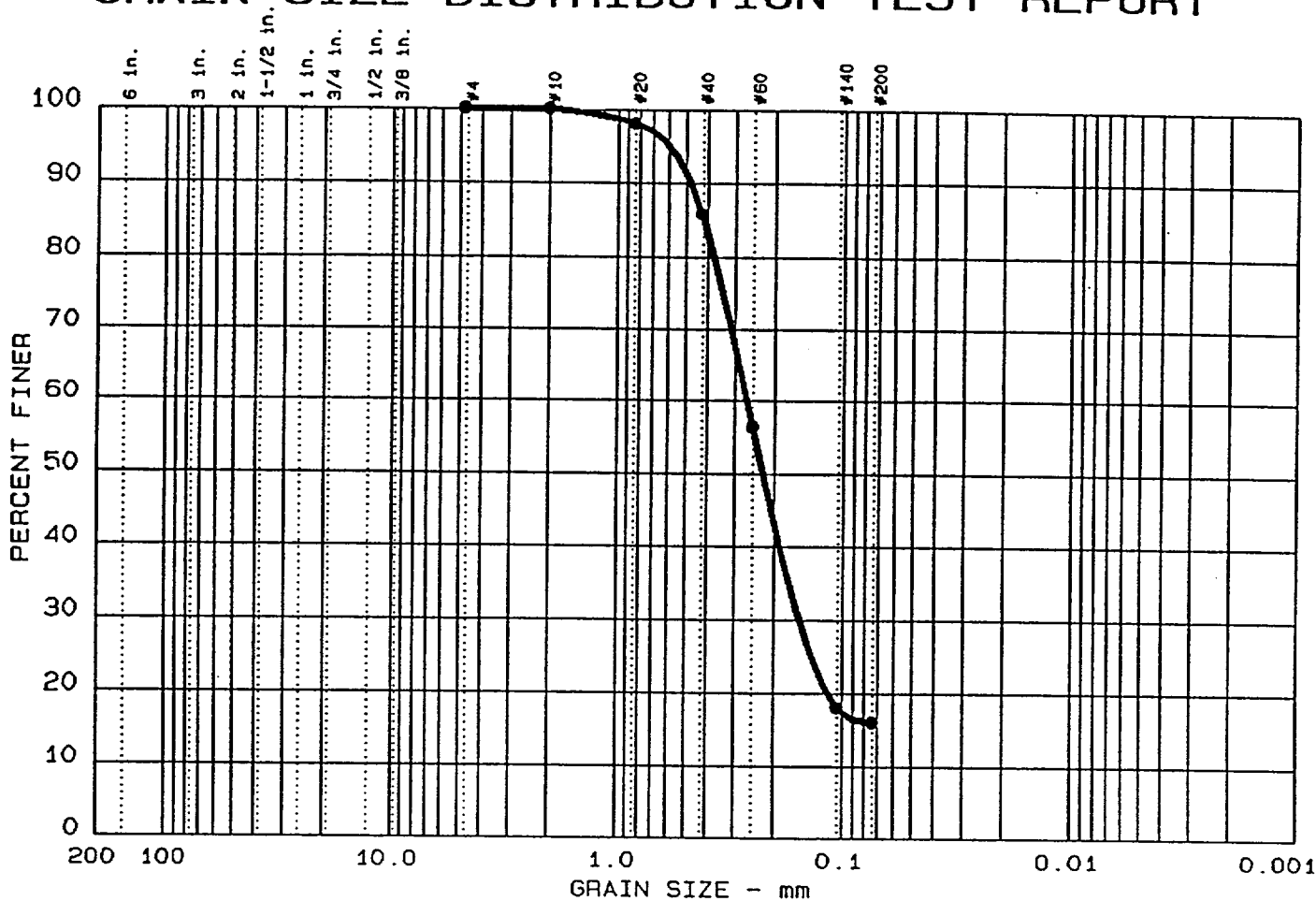
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 3	0.0	0.0	87.1	12.9	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.64	0.36	0.30	0.192	0.1017			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan-Red Brown Silty Sand	SM	A-2-4 (0.2)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-17 SS-17 @ 31.0-32.5 Ft. Date: June 21, 1998	Remarks: Tested by: SC & STM Reviewed by: WJ Moisture Content = 16.4% ASTM D422 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 4	0.0	0.0	83.9	16.1	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.41	0.26	0.23	0.154				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-19 @ 34-35.5 Ft.

Date: June 21, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC & STM*

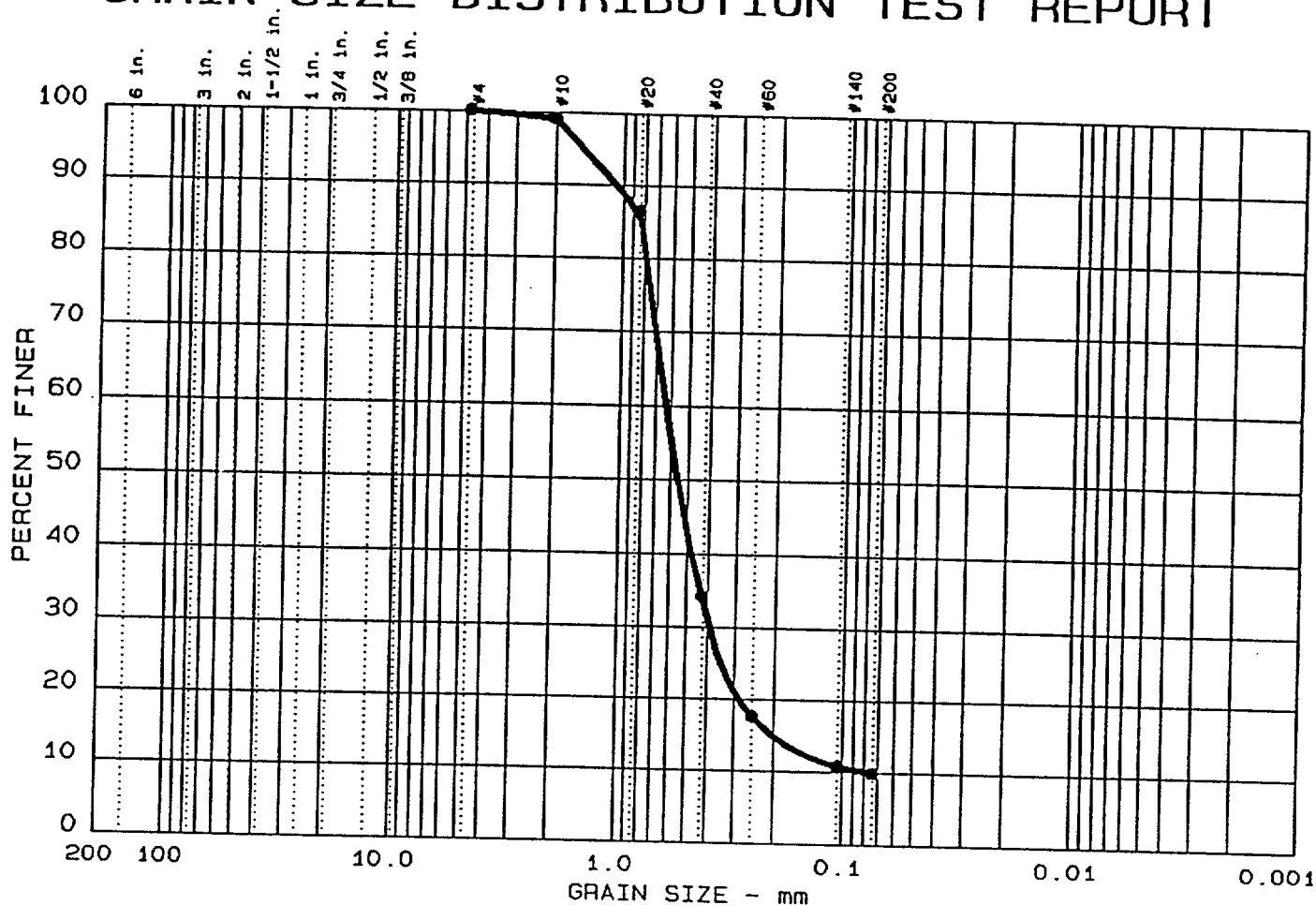
Reviewed by: *HP*

Moisture Content = 16.7%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 5	0.0	0.0	90.1	9.9	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.83	0.62	0.55	0.389	0.2018	0.0741	3.27	8.4

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

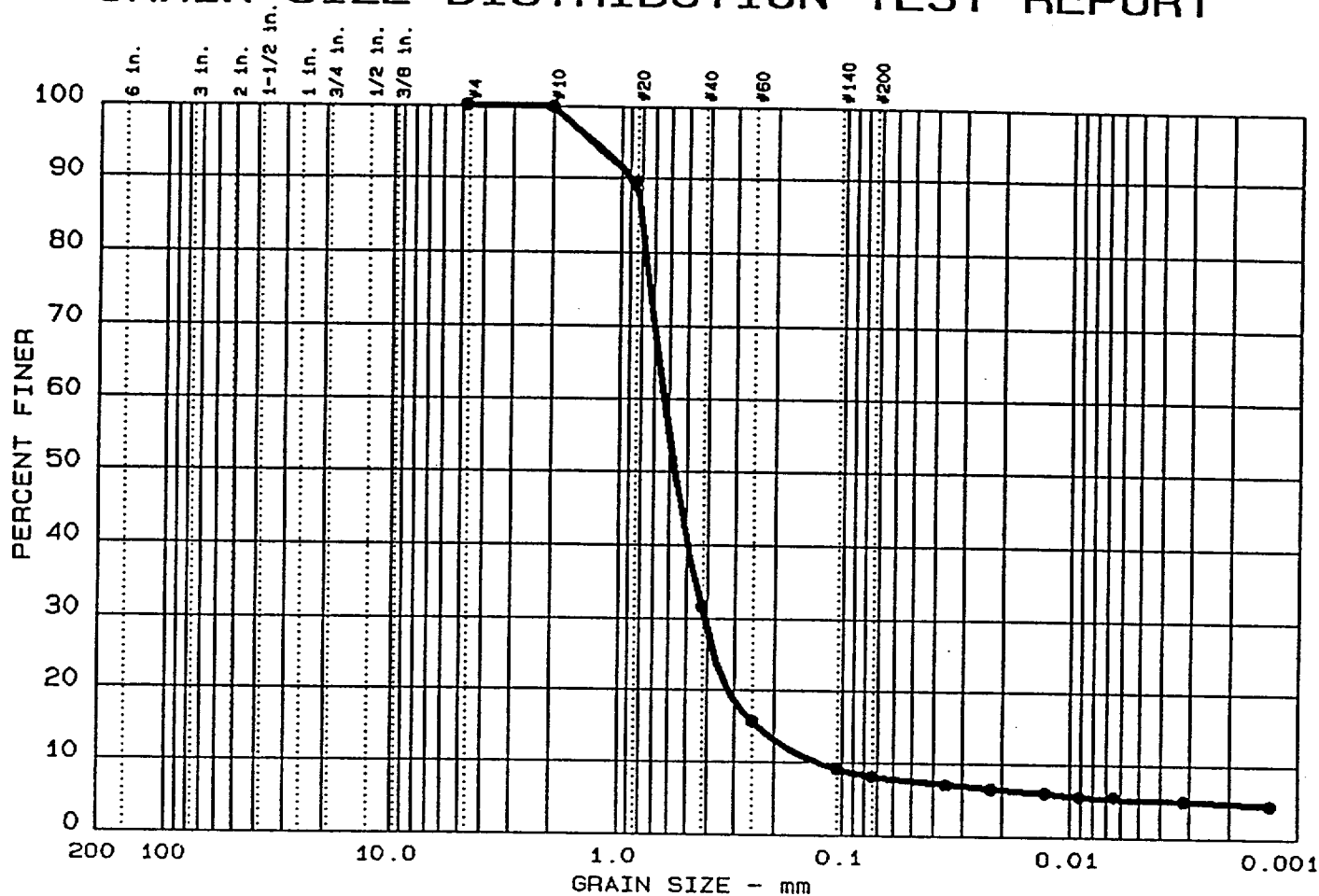
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-20 @ 35.5-37.0 Ft.
 Date: June 21, 1998

Remarks:
 Tested by: *ScdJm*
 Reviewed by: *W*
 Moisture Content = 12.8%
 ASTM D422 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 5	0.0	0.0	91.9	3.0	5.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• NL	NP	0.80	0.63	0.56	0.409	0.2355	0.1279	2.09	4.9

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

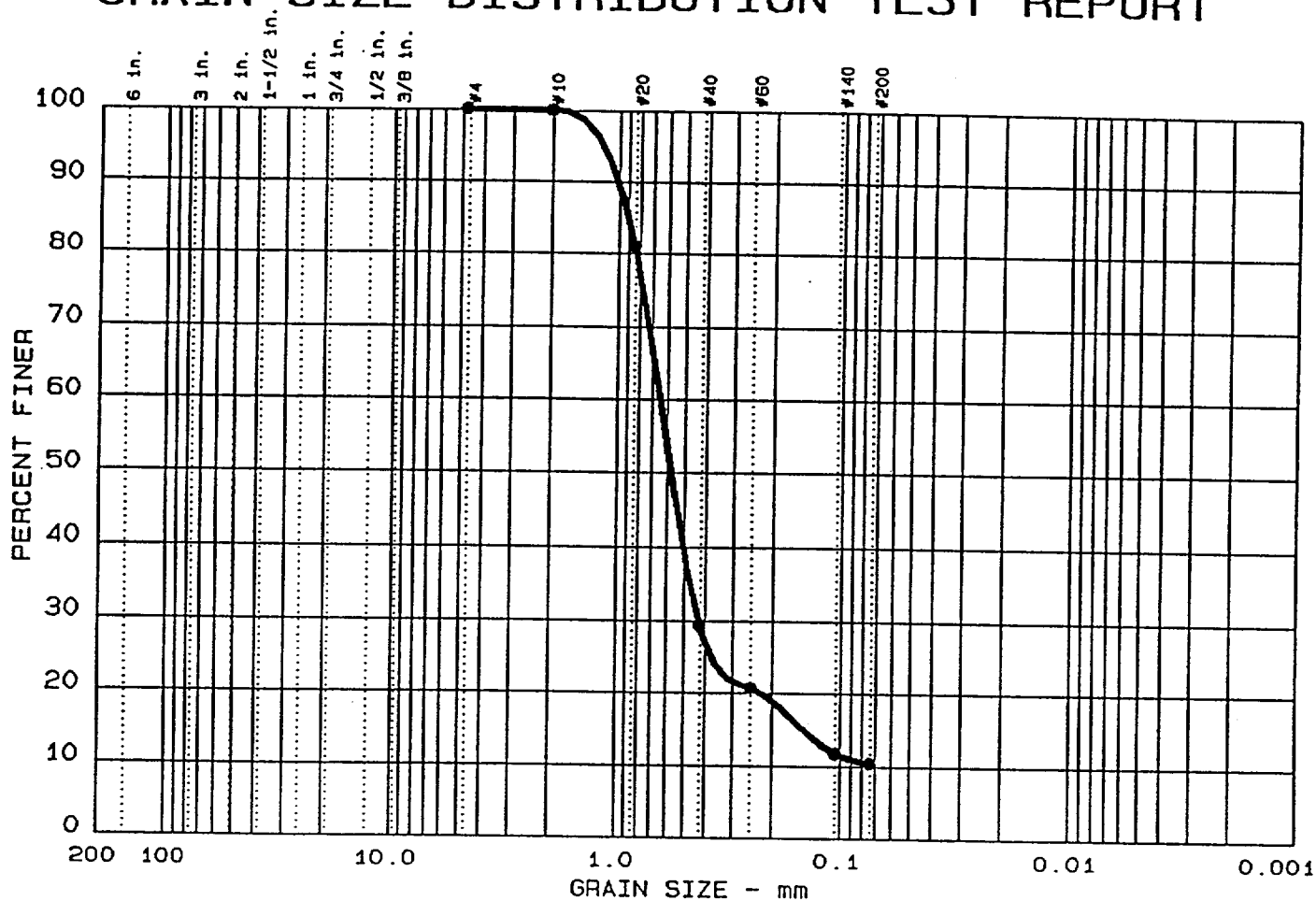
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-22 @ 38.5-40.0 Ft.
 Date: June 19, 1998

Remarks:
 Tested by: SC + JPM
 Reviewed by: HB
 Moisture Content = 15.1%
 ASTM D422, D4318 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 6	0.0	0.0	89.5	10.5	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.90	0.64	0.57	0.426	0.1444			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

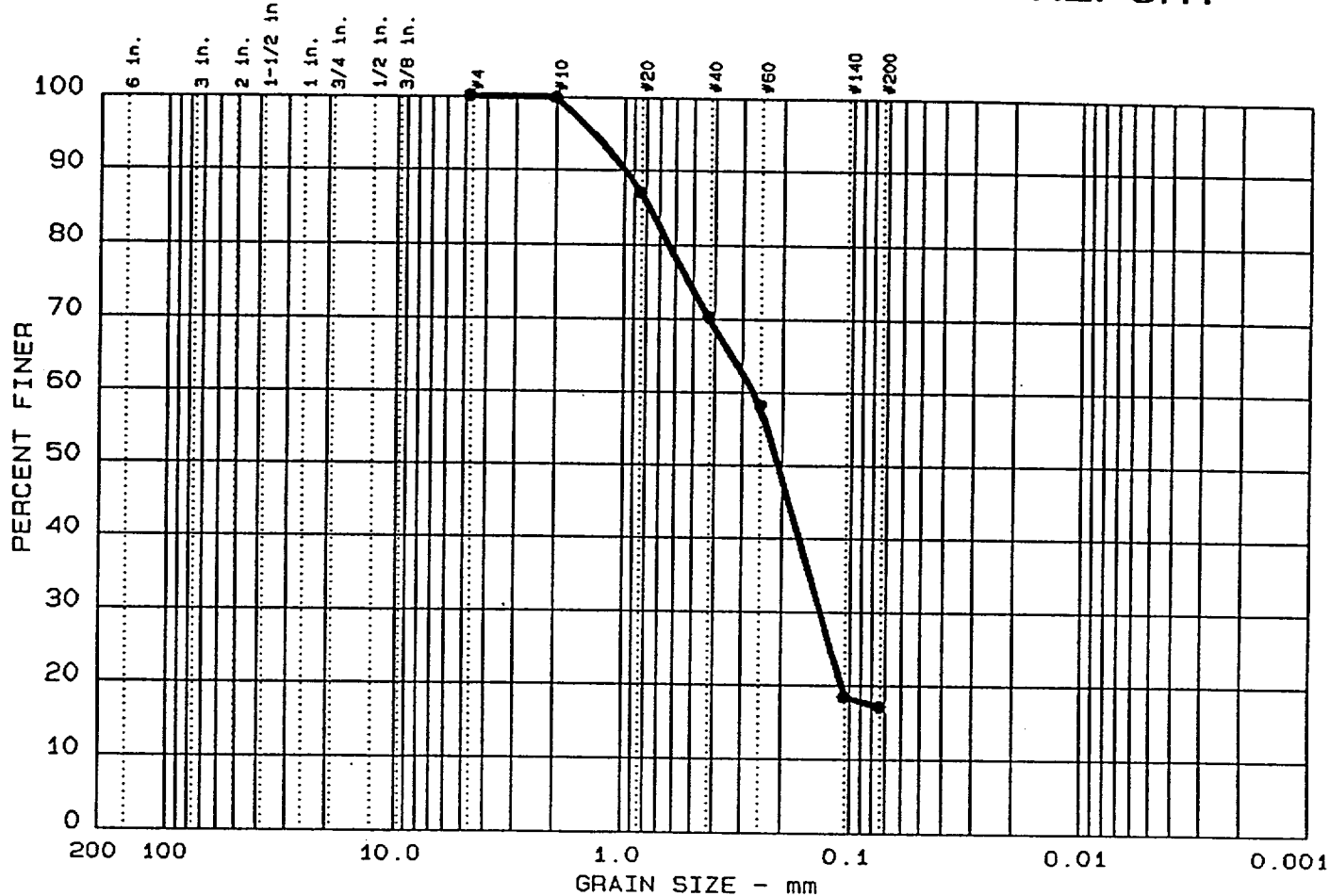
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-24 @ 41.5-43.0 Ft.
 Date: June 21, 1998

Remarks:
 Tested by: *SCJ/m*
 Reviewed by: *W*
 Moisture Content = 14.9%
 ASTM D422 & D2216

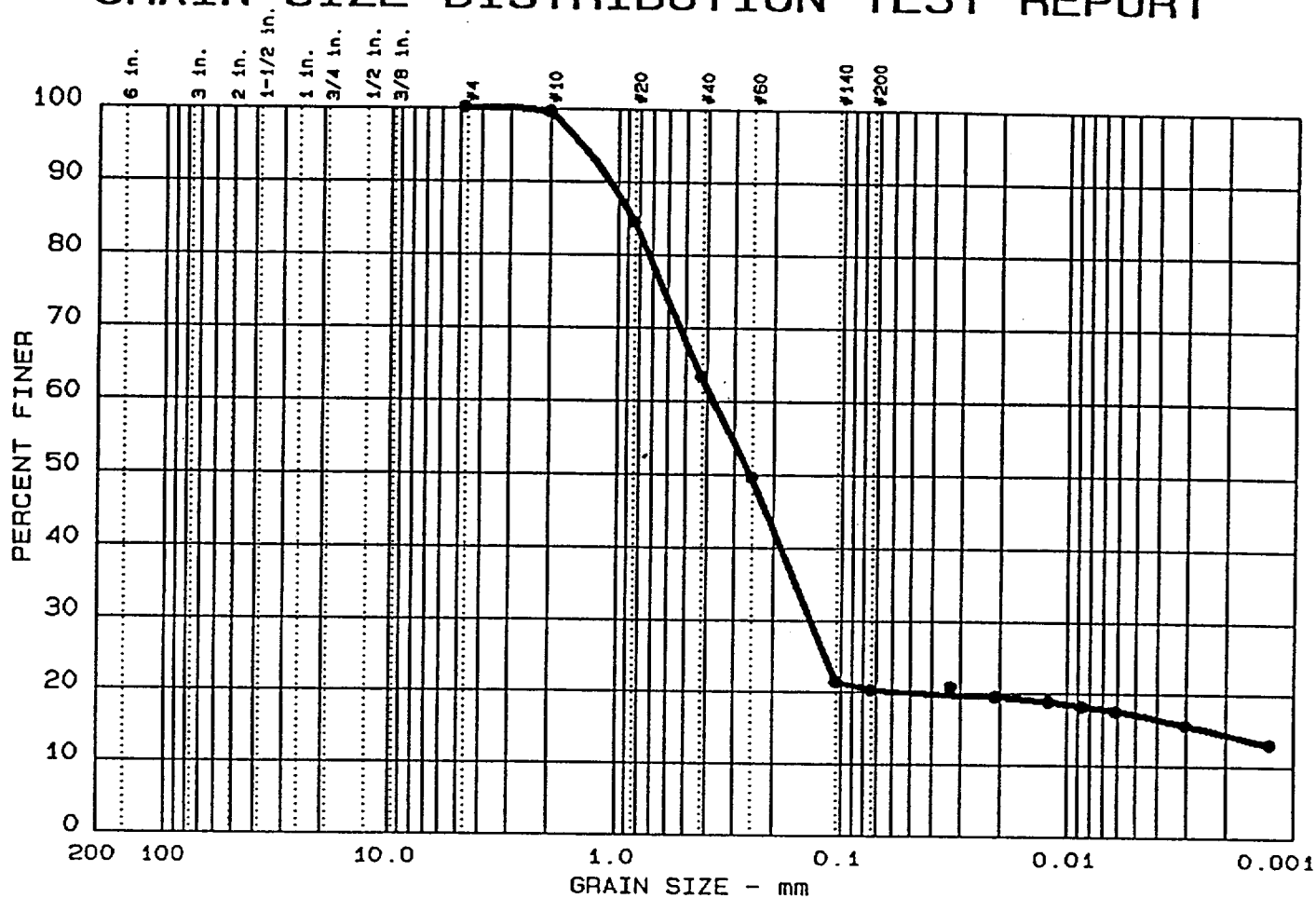
GRAIN SIZE DISTRIBUTION TEST REPORT
 LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



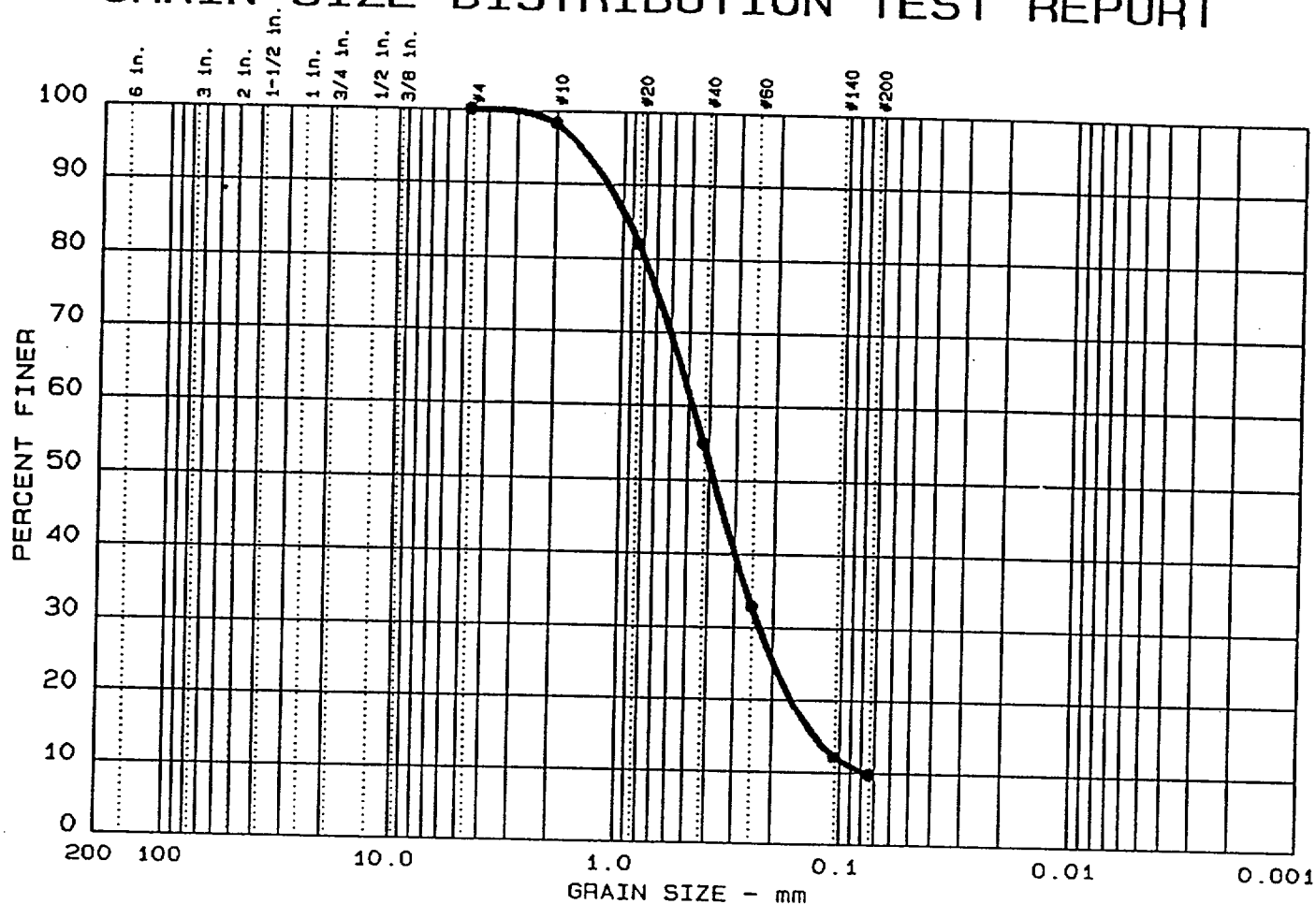
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 2	0.0	0.0	79.7	3.2	17.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 44	22	0.85	0.37	0.25	0.136	0.0024			

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown Clayey Sand	SC	A-2-7 (0.6)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-17 SS-27 @ 46.0-47.5 Ft. Date: June 19, 1998	Remarks: Tested by: <i>SC & JTM</i> Reviewed by: <i>H</i> Moisture Content = 16.4% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• B	0.0	0.0	90.2	9.8	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.93	0.47	0.38	0.231	0.1284	0.0765	1.48	6.2

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Well Graded Sand with Silt	SW-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-30 @ 50.5-52.0 Ft.

Date: June 21, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *S. C. Smith*

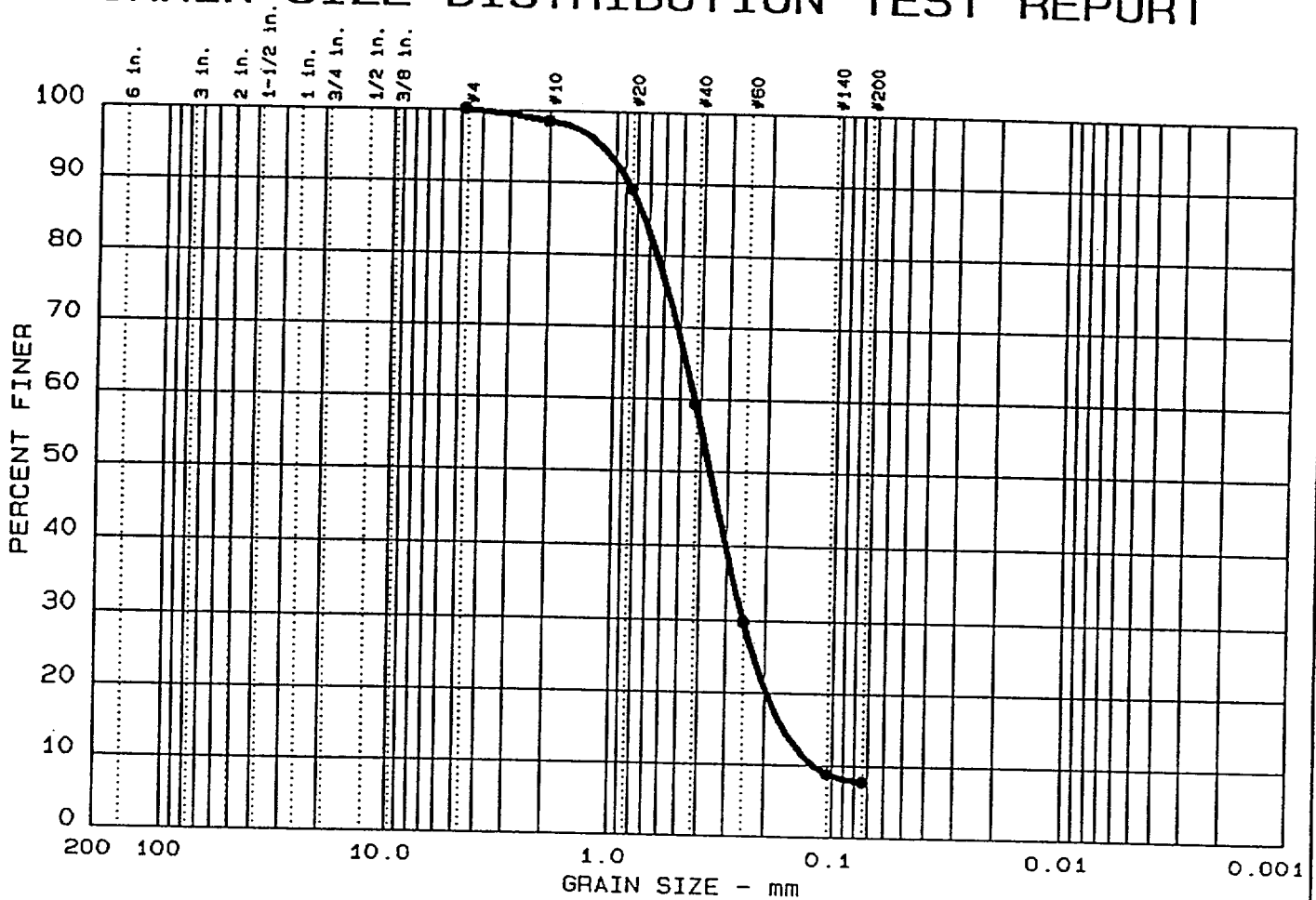
Reviewed by: *HS*

Moisture Content = 13.7%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 9	0.0	0.0	92.3	7.7	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		0.73	0.42	0.36	0.251	0.1639	0.1201	1.23	3.5

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-17 SS-32 @ 53.5-55.0 Ft.
 Date: June 21, 1998

Remarks:
 Tested by: *SC + JTM*
 Reviewed by: *W*
 Moisture Content = 16.4%
 ASTM D422 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

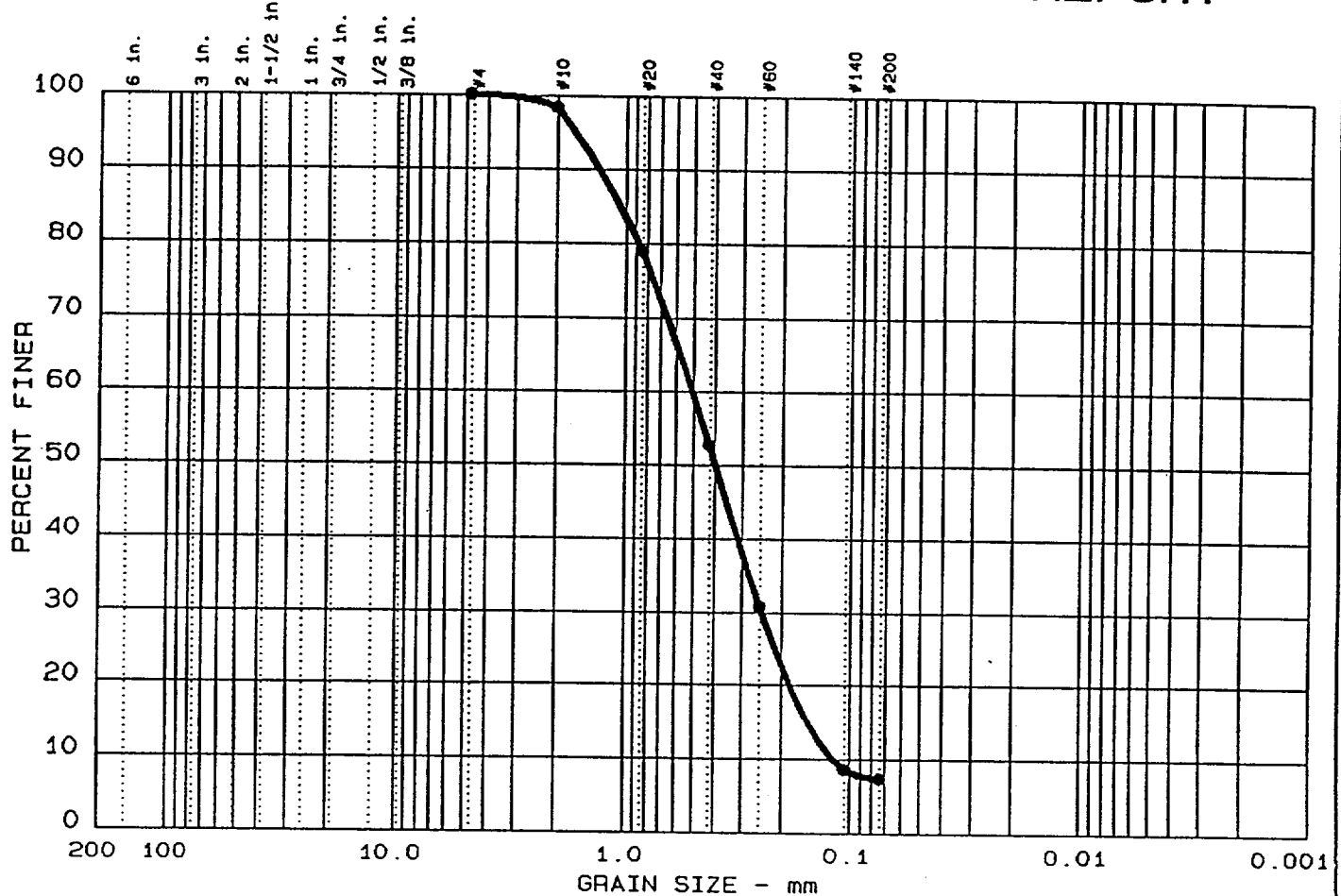
Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve is plotted on a semi-logarithmic scale, with the x-axis representing Grain Size in mm (logarithmic scale) and the y-axis representing Percent Finer (0 to 100). The curve shows a sharp drop in percent finer between 0.1 mm and 0.075 mm, indicating a well-graded material.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
7.5	100
4.75	100
2.5	100
1.5	100
1.0	100
0.75	100
0.6	100
0.425	100
0.3	100
0.25	100
0.15	100
0.106	100
0.075	100
0.06	100
0.0425	100
0.03	100
0.025	100
0.015	100
0.0106	100
0.0075	100
0.006	100
0.00425	100
0.003	100
0.0025	100
0.0015	100
0.00106	100
0.00075	100
0.0006	100
0.000425	100
0.0003	100
0.00025	100
0.00015	100
0.000106	100
0.000075	100
0.00006	100
0.0000425	100
0.00003	100
0.000025	100
0.000015	100
0.0000106	100
0.0000075	100
0.000006	100
0.00000425	100
0.000003	100
0.0000025	100
0.0000015	100
0.00000106	100
0.00000075	100
0.0000006	100
0.000000425	100
0.0000003	100
0.00000025	100
0.00000015	100
0.000000106	100
0.000000075	100
0.00000006	100
0.0000000425	100
0.00000003	100
0.000000025	100
0.000000015	100
0.0000000106	100
0.0000000075	100
0.000000006	100
0.00000000425	100
0.000000003	100
0.0000000025	100
0.0000000015	100
0.00000000106	100
0.00000000075	100
0.0000000006	100
0.000000000425	100
0.0000000003	100
0.00000000025	100
0.00000000015	100
0.000000000106	100
0.000000000075	100
0.00000000006	100
0.0000000000425	100
0.00000000003	100
0.000000000025	100
0.000000000015	100
0.0000000000106	100
0.0000000000075	100
0.000000000006	100
0.00000000000425	100
0.000000000003	100
0.0000000000025	100
0.0000000000015	100
0.00000000000106	100
0.00000000000075	100
0.0000000000006	100
0.000000000000425	100
0.0000000000003	100
0.00000000000025	100
0.00000000000015	100
0.000000000000106	100
0.000000000000075	100
0.00000000000006	100
0.0000000000000425	100
0.00000000000003	100
0.000000000000025	100
0.000000000000015	100
0.0000000000000106	100
0.0000000000000075	100
0.000000000000006	100
0.00000000000000425	100
0.000000000000003	100
0.0000000000000025	100
0.0000000000000015	100
0.00000000000000106	100
0.00000000000000075	100
0.0000000000000006	100
0.000000000000000425	100

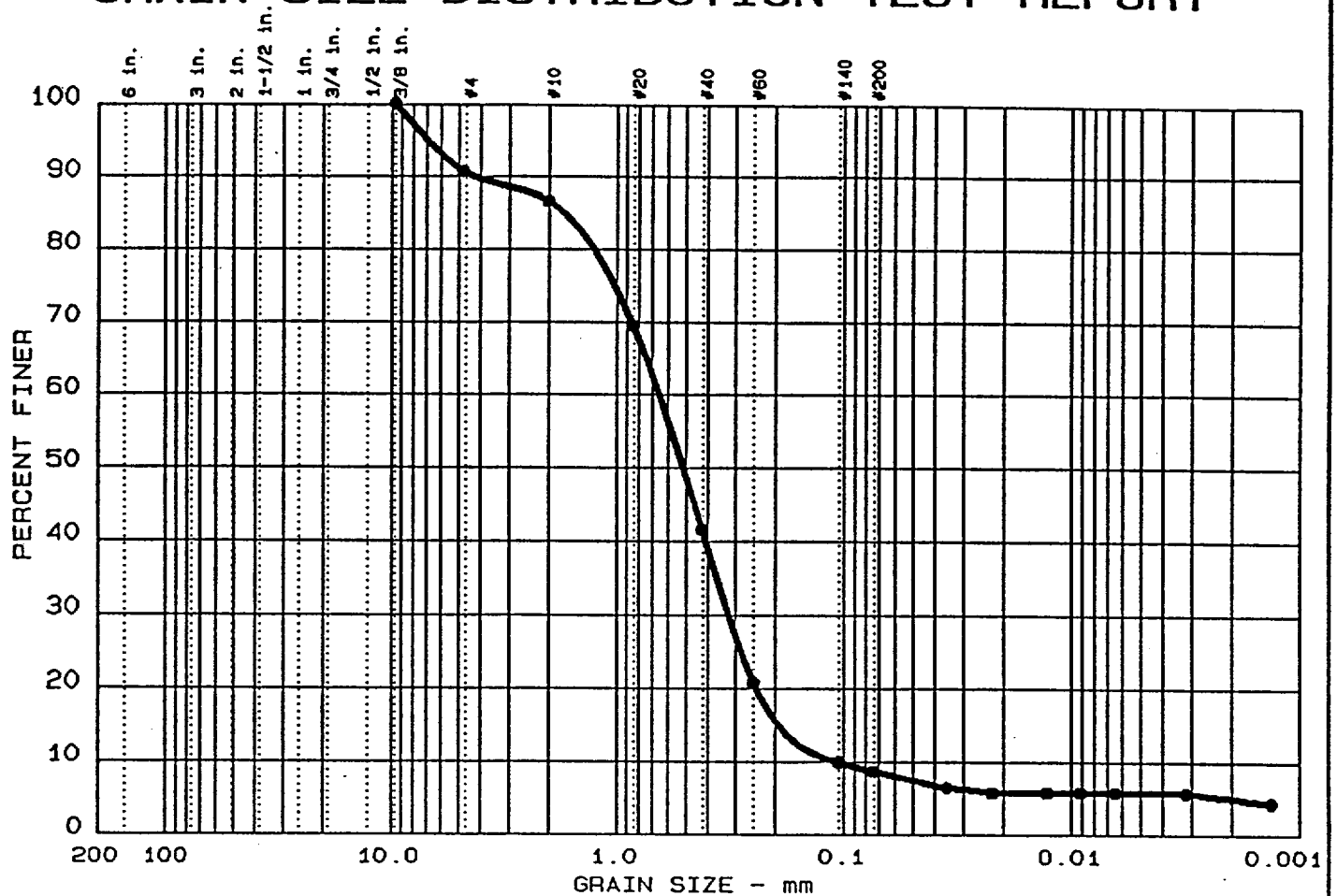
[illegible]

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion ◆ Location: FB-17 SS-34 @ 56.5-58.0 Ft.	Remarks: Tested by: <i>SC + Jmy</i> Reviewed by: <i>th</i> Moisture Content = 19.9% ASTM D422, D4318 & D2216
Date: June 19, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	
Figure No.	

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 9	0.0	9.3	82.0	3.0	5.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• NL	NP	1.70	0.65	0.51	0.321	0.1936	0.1064	1.50	6.1

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Well-Graded Silty Sand	SW-SM	A-1-b

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-40 @ 65.5-67.0 Ft

Date: June 19, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SCJ/TM*

Reviewed by: *H*

Moisture Content = 16.2%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
7.5	100
4.75	100
2.5	100
1.5	100
1.0	100
0.75	100
0.6	100
0.425	100
0.3	100
0.25	100
0.2	100
0.15	100
0.125	100
0.106	100
0.075	100
0.06	100
0.05	100
0.0425	100
0.0375	100
0.03	100
0.025	100
0.02	100
0.015	100
0.0125	100
0.0106	100
0.0075	100
0.006	100
0.005	100
0.00425	100
0.00375	100
0.003	100
0.0025	100
0.002	100
0.0015	100
0.00125	100
0.00106	100
0.00075	100
0.0006	100
0.0005	100
0.000425	100
0.000375	100
0.0003	100
0.00025	100
0.0002	100
0.00015	100
0.000125	100
0.000106	100
0.000075	100
0.00006	100
0.00005	100
0.0000425	100
0.0000375	100
0.00003	100
0.000025	100
0.00002	100
0.000015	100
0.0000125	100
0.0000106	100
0.0000075	100
0.000006	100
0.000005	100
0.00000425	100
0.00000375	100
0.000003	100
0.0000025	100
0.000002	100
0.0000015	100
0.00000125	100
0.00000106	100
0.00000075	100
0.0000006	100
0.0000005	100
0.000000425	100
0.000000375	100
0.0000003	100
0.00000025	100
0.0000002	100
0.00000015	100
0.000000125	100
0.000000106	100
0.000000075	100
0.00000006	100
0.00000005	100
0.0000000425	100
0.0000000375	100
0.00000003	100
0.000000025	100
0.00000002	100
0.000000015	100
0.0000000125	100
0.0000000106	100
0.0000000075	100
0.000000006	100
0.000000005	100
0.00000000425	100
0.00000000375	100
0.000000003	100
0.0000000025	100
0.000000002	100
0.0000000015	100
0.00000000125	100
0.00000000106	100
0.00000000075	100
0.0000000006	100
0.0000000005	100
0.000000000425	100
0.000000000375	100
0.0000000003	100
0.00000000025	100
0.0000000002	100
0.00000000015	100
0.000000000125	100
0.000000000106	100
0.000000000075	100
0.00000000006	100
0.00000000005	100
0.0000000000425	100
0.0000000000375	100
0.00000000003	100
0.000000000025	100
0.00000000002	100
0.000000000015	100
0.0000000000125	10

[illegible]

Project No.: 50161-7-0108 Task 21
Project: F-Area Northeast Expansion
● Location: FB-17 SS-41 @ 67.0-68.5 Ft.

Date: June 19, 1998

Remarks:

Tested by: *SC [Signature]*

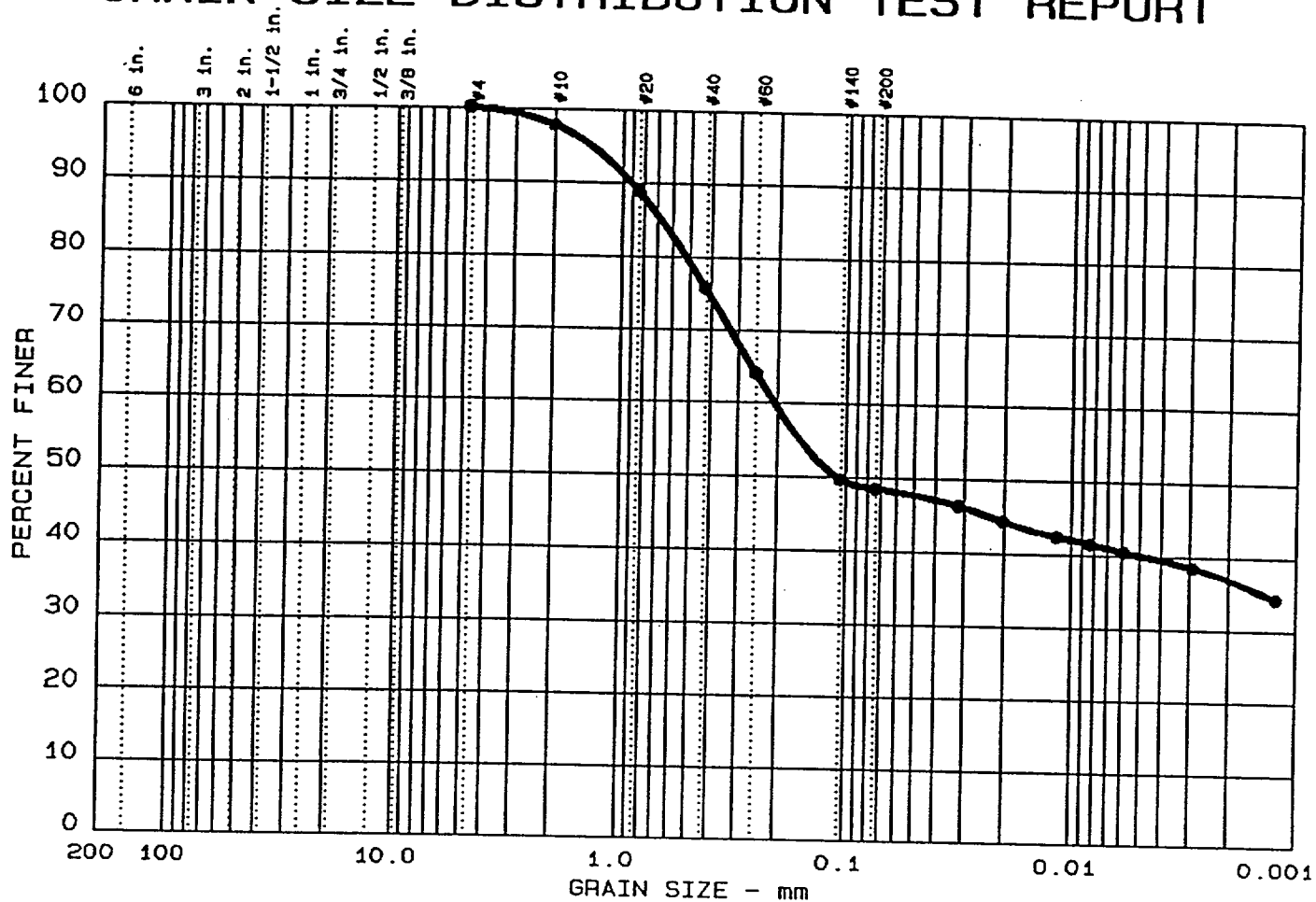
Reviewed by: *[Signature]*

Moisture Content = 30.4%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 11	0.0	0.0	51.6	8.4	40.0

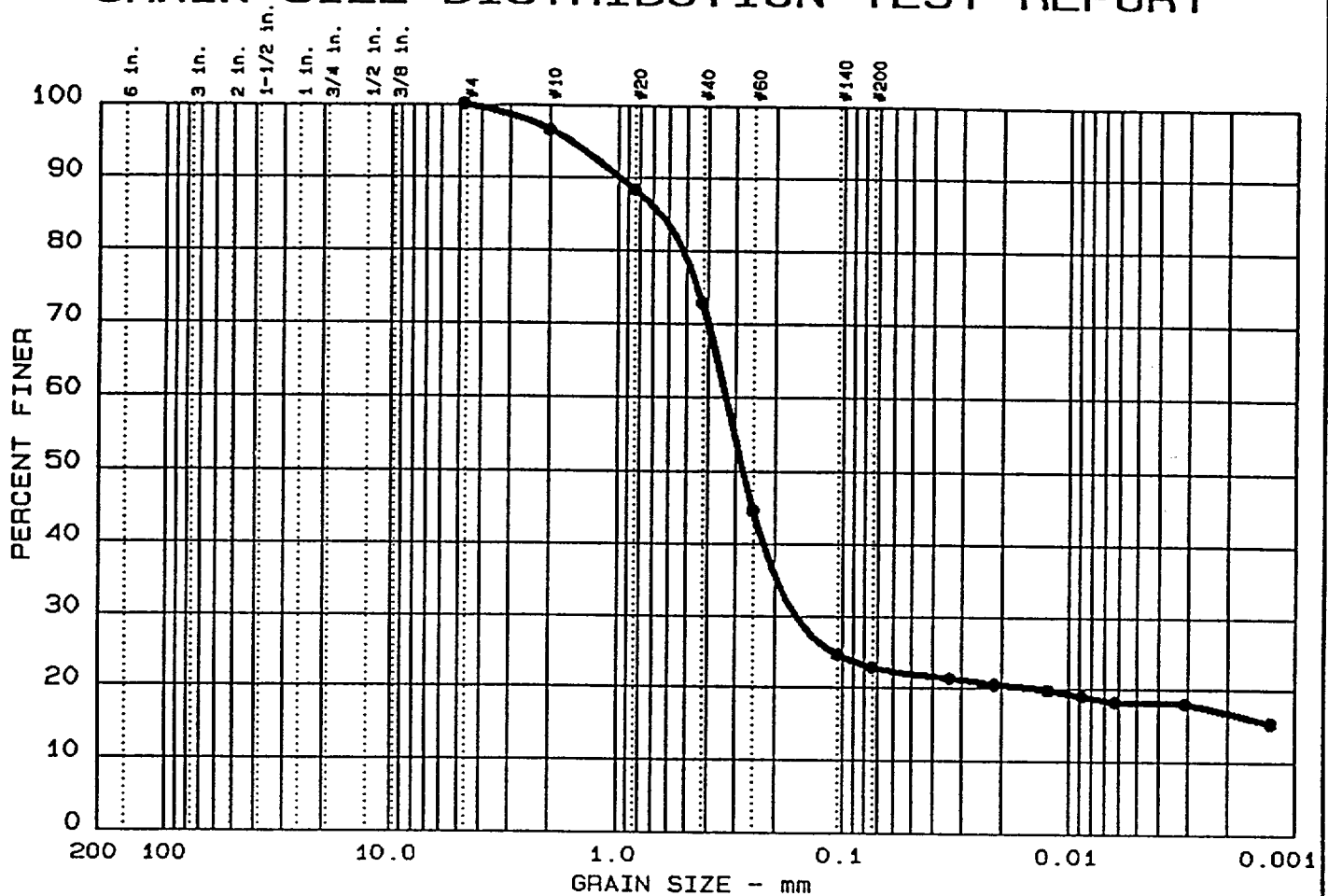
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 75	43	0.66	0.21	0.11					

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Clayey Sand	SC	A-7-5 (15.8)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Norhteast Expansion
 • Location: FB-17 SS-42 @ 68.5-70.0 Ft.
 Date: June 19, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *JTM + SC*
 Reviewed by: *HP*
 Moisture Content = 43.0%
 ASTM D422, D4318 & D2216
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



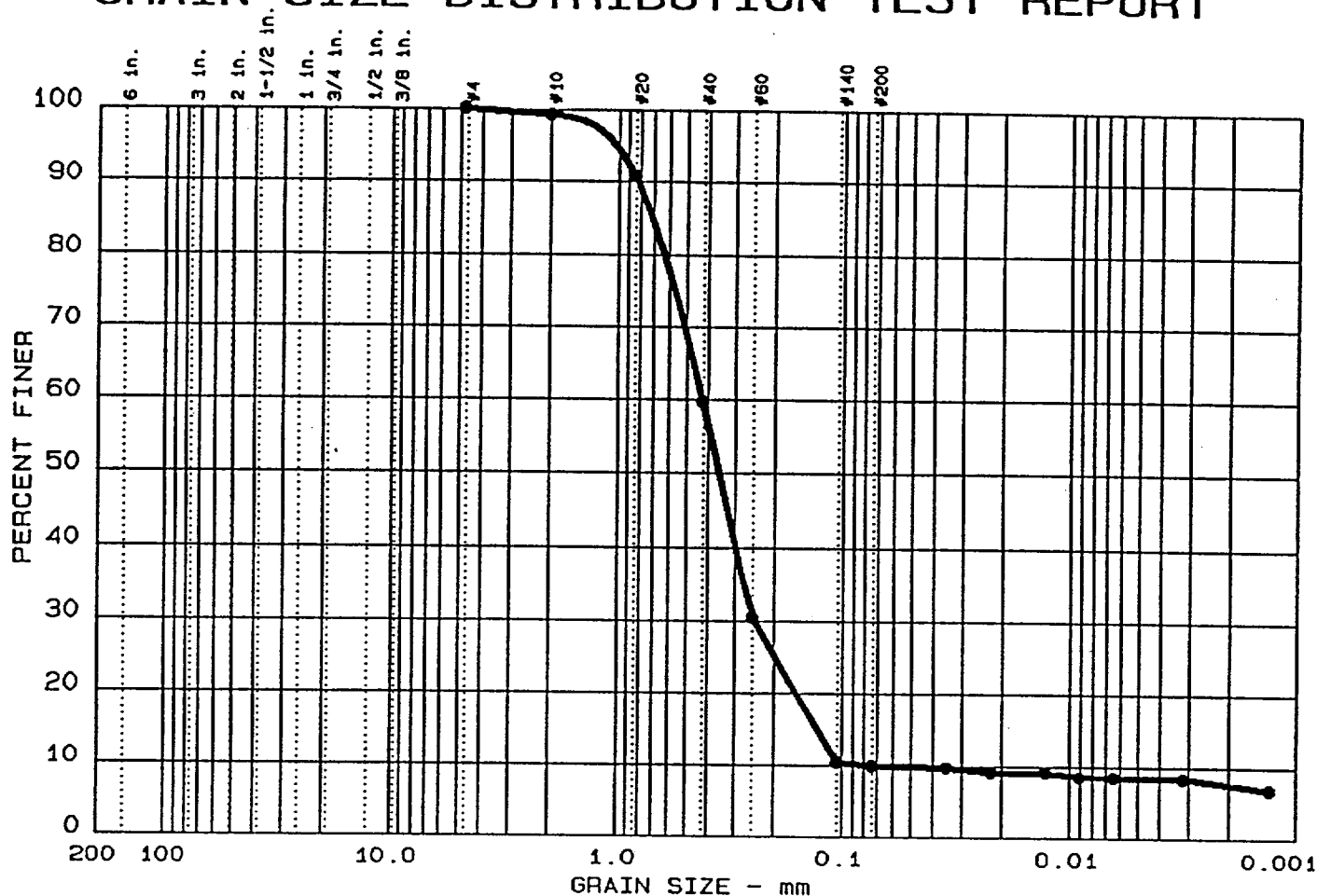
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 16	0.0	0.0	77.2	4.7	18.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 29	8	0.64	0.33	0.28	0.161				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Clayey Sand	SC	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-17 SS-43 @ 70.0-71.5 Ft. Date: June 19, 1998	Remarks: Tested by: <i>SCJ/SM</i> Reviewed by: <i>HB</i> Moisture Content = 29.3% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 14	0.0	0.0	90.0	1.5	8.5

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• NL	NP	0.70	0.42	0.35	0.246	0.1278	0.0752	1.91	5.6

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

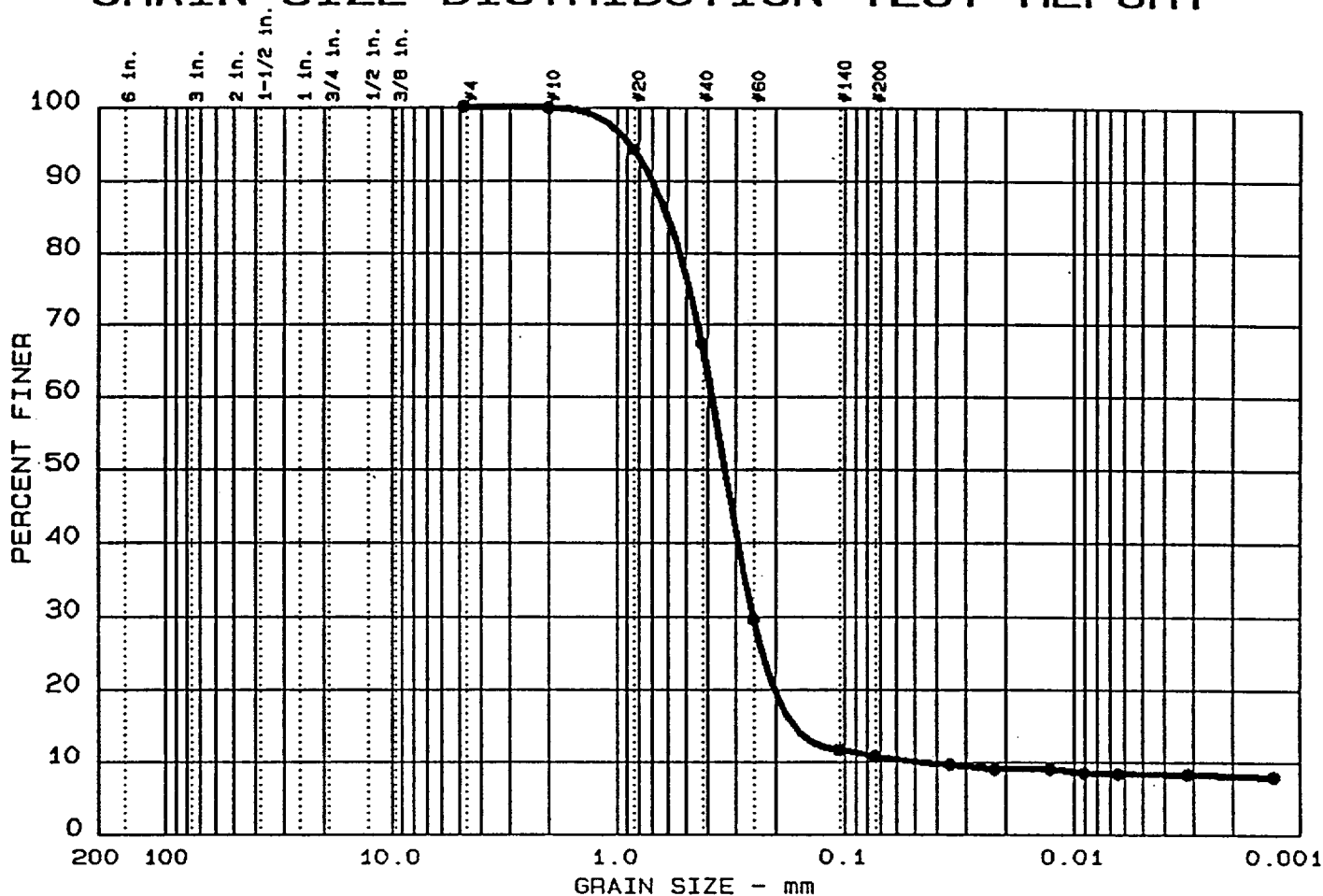
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-45 @ 73.0-74.5 Ft.
 Date: June 19, 1998

Remarks:
 Tested by: *SCJ/STM*
 Reviewed by: *HJ*
 Moisture Content = 30.0%
 ASTM D422, D4318 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 15	0.0	0.0	89.2	2.5	8.3

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• NL	NP	0.59	0.38	0.33	0.250	0.1652	0.0466	3.55	8.1

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-2-4 (0.4)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-49 @ 79.0-80.5 Ft.

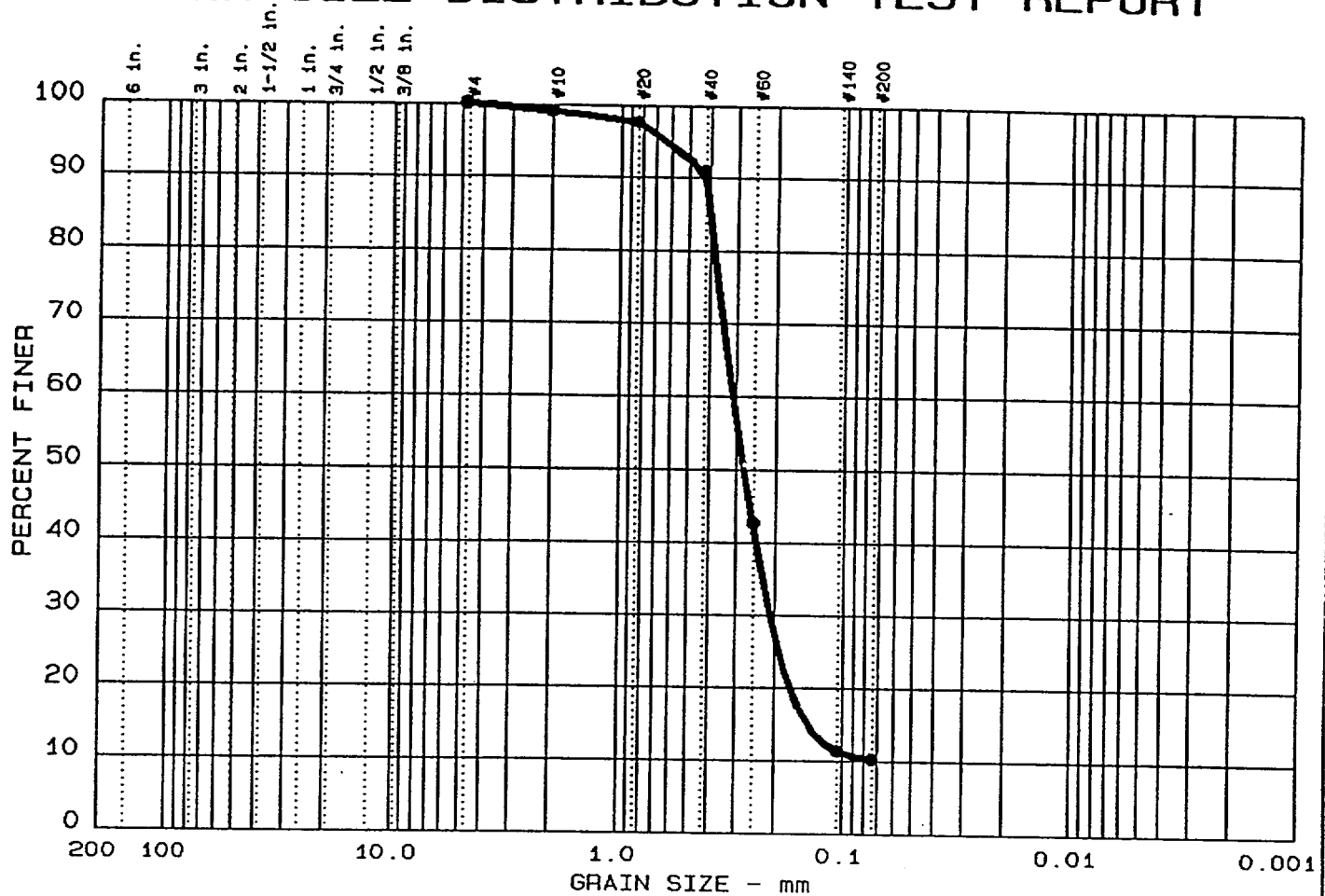
Date: June 19, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SCJ/SM*
 Reviewed by: *HB*
 Moisture Content = 26.3%
 ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
13	0.0	0.0	89.7	10.3	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.40	0.31	0.28	0.210	0.1422			

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-17 SS-52 @ 83.5-85.0 Ft.
 Date: June 25, 1998

Remarks:
 Tested by: *CS+ES*
 Reviewed by: *HD*
 Moisture Content = 28.8%
 ASTM D422 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

The graph shows a grain size distribution curve for a soil sample. The y-axis represents 'PERCENT FINER' from 0 to 100. The x-axis represents 'GRAIN SIZE - mm' on a logarithmic scale from 200 to 0.001. The curve starts at 100% finer for grain sizes down to about 4.75 mm, then drops sharply, passing through approximately 80% finer at 2.0 mm, 40% finer at 0.85 mm, and 15% finer at 0.425 mm. It levels off to about 8% finer for grain sizes below 0.25 mm.

Grain Size (mm)	Percent Finer (%)
4.75	100
2.0	80
0.85	40
0.425	15
0.25	8
0.075	8

[illegible]

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion ◆ Location: FB-17 SS-55 @ 88.0-89.5 Ft.	Remarks: Tested by: <i>SC + JTM</i> Reviewed by: <i>W</i> Moisture Content = 23.1% ASTM D422 & D2216
Date: June 25, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve is smooth and continuous, indicating a well-sorted soil.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
50	100
25	100
12.5	100
6.3	100
3.15	100
1.5	100
0.75	95
0.375	80
0.19	55
0.075	38
0.0375	12
0.019	11
0.0095	10
0.00475	9
0.00235	8
0.00118	7

[illegible]

Project No.: 50161-7-0108 Task 21 Project: F-Area Notheast Expansion • Location: FB-17 SS-57 @ 91-92.5 Ft. Date: June 30, 1998	Remarks: Tested by: <i>SCJ/m</i> Reviewed by: <i>W</i> Moisture Content = 27.2% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

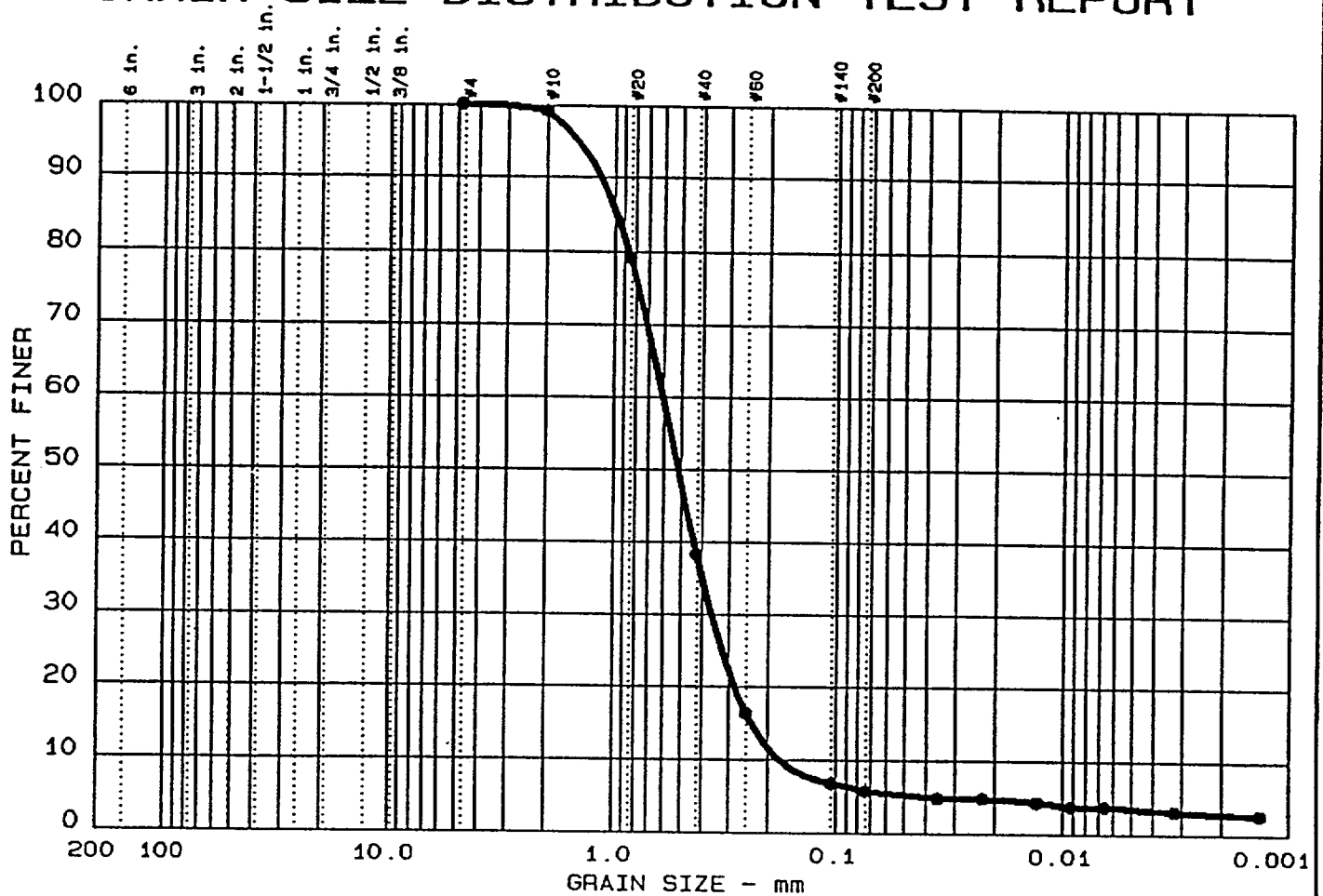
Grain size distribution test report graph showing Percent Finer vs Grain Size (mm). The curve starts at 100% finer for 200 mm and drops sharply between 1.0 mm and 0.075 mm, leveling off at approximately 5% finer for 0.075 mm and below.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
30	100
20	100
15	100
10	100
7.5	100
5	100
4	100
3	100
2	100
1.5	100
1.0	98
0.75	88
0.6	75
0.425	42
0.3	30
0.25	25
0.2	18
0.15	12
0.106	8
0.075	7
0.06	6
0.05	6
0.0425	6
0.0375	6
0.03	5
0.025	5
0.02	5
0.015	4
0.0125	4
0.0106	4
0.0085	4
0.0075	4
0.006	3
0.005	3
0.00425	3
0.00375	3
0.003	3
0.0025	3
0.002	3
0.0015	3
0.00125	3
0.00106	3
0.00085	3
0.00075	3
0.0006	3
0.0005	3
0.000425	3
0.000375	3
0.0003	3
0.00025	3
0.0002	3
0.00015	3
0.000125	3
0.000106	3
0.000085	3
0.000075	3
0.00006	3
0.00005	3
0.0000425	3
0.0000375	3
0.00003	3
0.000025	3
0.00002	3
0.000015	3
0.0000125	3
0.0000106	3
0.0000085	3
0.0000075	3
0.000006	3
0.000005	3
0.00000425	3
0.00000375	3
0.000003	3
0.0000025	3
0.000002	3
0.0000015	3
0.00000125	3
0.00000106	3
0.00000085	3
0.00000075	3
0.0000006	3
0.0000005	3
0.000000425	3
0.000000375	3
0.0000003	3
0.00000025	3
0.0000002	3
0.00000015	3
0.000000125	3
0.000000106	3
0.000000085	3
0.000000075	3
0.00000006	3
0.00000005	3
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0.00000000015	3
0.000000000125	3
0.000000000106	3
0.000000000085	3
0.000000000075	3
0.00000000006	3
0.00000000005	3
0.0000000000425	3
0.0000000000375	3
0.00000000003	3

[illegible]

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-17 SS-58 @ 92.5-94.0 Ft.	Remarks: Tested by: SCJ/JM Reviewed by: HP Moisture Content = 26.2% ASTM D422, D4318 & D2216
Date: June 23, 1998	Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



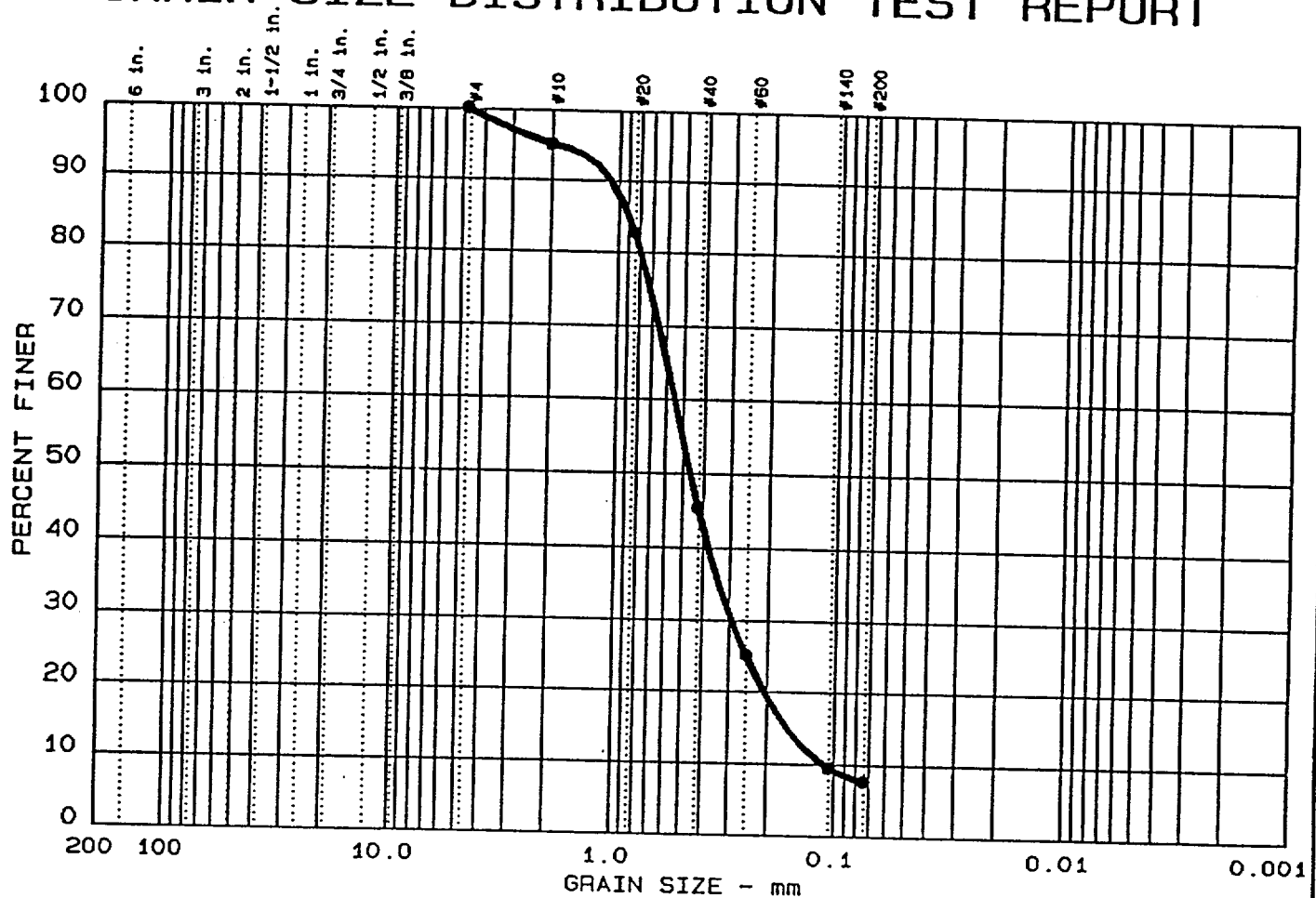
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 6	0.0	0.0	94.3	2.3	3.4

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• NL	NP	0.97	0.60	0.51	0.358	0.2363	0.1772	1.21	3.4

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt ...	SP-SM	A-1-b

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-17 SS-60 @ 95.5-97.0 Ft. Date: June 23, 1998	Remarks: Tested by: <i>SCJ/JTM</i> Reviewed by: <i>HB</i> Moisture Content = 20.2% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 10	0.0	0.0	92.3	7.7	

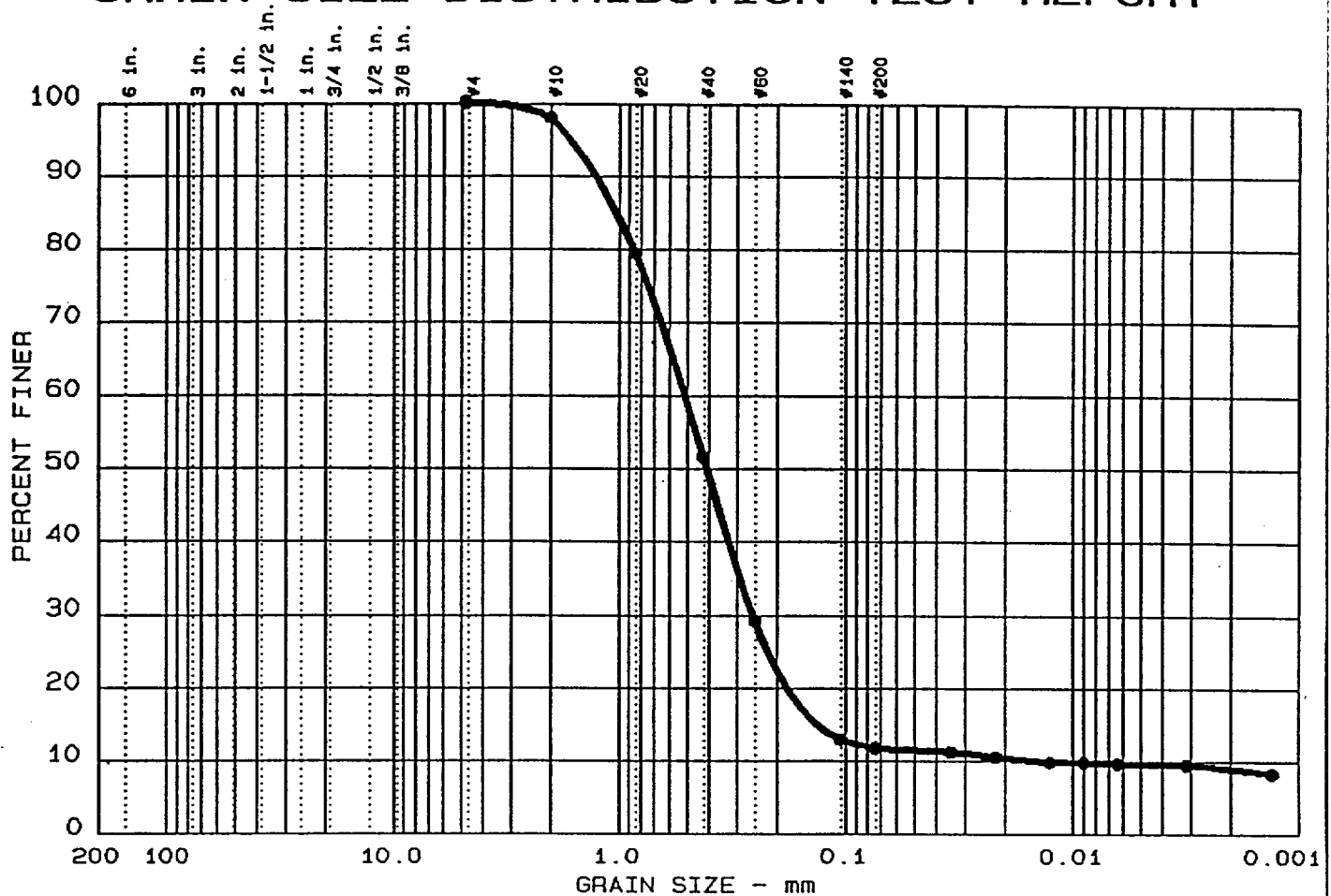
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.89	0.54	0.46	0.292	0.1622	0.1096	1.43	5.0

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-62@ 98.5-100.0 Ft.
 Date: June 23, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HW
 Moisture Content = 19.6%
 ASTM D422 & D2216
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 2	0.0	0.0	88.2	2.2	9.6

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● 40	15	1.02	0.51	0.41	0.256	0.1327	0.0137	9.38	37.0

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown & Gray Poorly Graded Sand with Clay	SP-SC	A-2-6 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Notheast Expansion
 ● Location: FB-17 SS-63 @ 100.0-101.5 Ft.

Date: June 30, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SCJ/TM*

Reviewed by: *HS*

Moisture Content = 29.8%

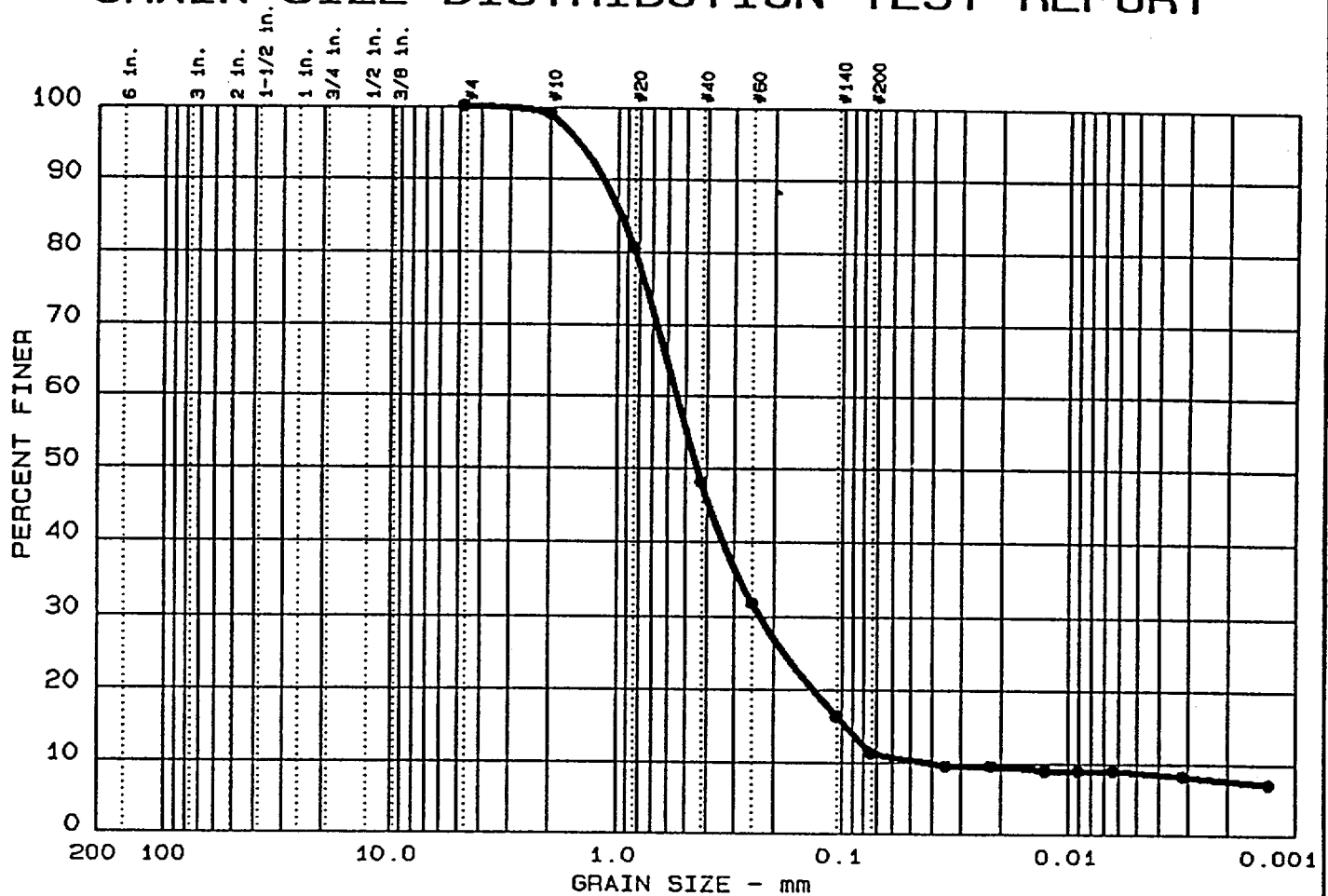
ASTM D422, D4318 & D2216

Figure No.

[illegible]

Project No.: 50161-7-0108 Task 21 Project: F-Area Notheast Expansion • Location: FB-17 SS-65 @ 103-104.5 Ft.	Remarks: Tested by: <i>SC Johnson</i> Reviewed by: <i>HB</i> Moisture Content = 40.1% ASTM D422, D4318 & D2216
Date: June 30, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	
	Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 8	0.0	0.0	88.8	2.5	8.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 32	7	0.95	0.54	0.44	0.231	0.0951	0.0415	2.37	13.1

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Well Graded Sand with Silt	SW-SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-17 SS-67 @ 108.0-109.5 Ft. Date: June 23, 1998	Remarks: Tested by: <i>SC-LTM</i> Reviewed by: <i>HS</i> Moisture Content = 25.8% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

Grain size distribution test report graph showing Percent Finer vs Grain Size (mm). The curve starts at 100% finer for 200 mm and drops sharply to about 5% finer for 0.075 mm.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
7.5	100
5	100
4	100
3	100
2	100
1.5	100
1.18	100
0.85	100
0.75	100
0.6	100
0.425	100
0.3	100
0.25	100
0.2	100
0.15	100
0.125	100
0.106	100
0.085	100
0.075	100
0.063	100
0.053	100
0.045	100
0.037	100
0.03	100
0.025	100
0.02	100
0.016	100
0.013	100
0.0106	100
0.0085	100
0.0075	100
0.0063	100
0.0053	100
0.0045	100
0.0037	100
0.003	100
0.0025	100
0.002	100
0.0016	100
0.0013	100
0.00106	100
0.00085	100
0.00075	100
0.00063	100
0.00053	100
0.00045	100
0.00037	100
0.0003	100
0.00025	100
0.0002	100
0.00016	100
0.00013	100
0.000106	100
0.000085	100
0.000075	100
0.000063	100
0.000053	100
0.000045	100
0.000037	100
0.00003	100
0.000025	100
0.00002	100
0.000016	100
0.000013	100
0.0000106	100
0.0000085	100
0.0000075	100
0.0000063	100
0.0000053	100
0.0000045	100
0.0000037	100
0.000003	100
0.0000025	100
0.000002	100
0.0000016	100
0.0000013	100
0.00000106	100
0.00000085	100
0.00000075	100
0.00000063	100
0.00000053	100
0.00000045	100
0.00000037	100
0.0000003	100
0.00000025	100
0.0000002	100
0.00000016	100
0.00000013	100
0.000000106	100
0.000000085	100
0.000000075	100
0.000000063	100
0.000000053	100
0.000000045	100
0.000000037	100
0.00000003	100
0.000000025	100
0.00000002	100
0.000000016	100
0.000000013	100
0.0000000106	100
0.0000000085	100
0.0000000075	100
0.0000000063	100
0.0000000053	100
0.0000000045	100
0.0000000037	100
0.000000003	100
0.0000000025	100
0.000000002	100
0.0000000016	100
0.0000000013	100
0.00000000106	100
0.00000000085	100
0.00000000075	100
0.00000000063	100
0.00000000053	100
0.00000000045	100
0.00000000037	100
0.0000000003	100
0.00000000025	100
0.0000000002	100
0.00000000016	100
0.00000000013	100
0.000000000106	100
0.000000000085	10

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

Grain Size (mm)	Percent Finer (%)
200	100
75	92
4.75	82
2.0	78
0.85	75
0.425	27
0.25	12
0.15	5
0.075	4
0.0425	3
0.025	2
0.015	2
0.0075	2
0.00425	1
0.0025	1
0.0015	1
0.00075	1

[illegible]

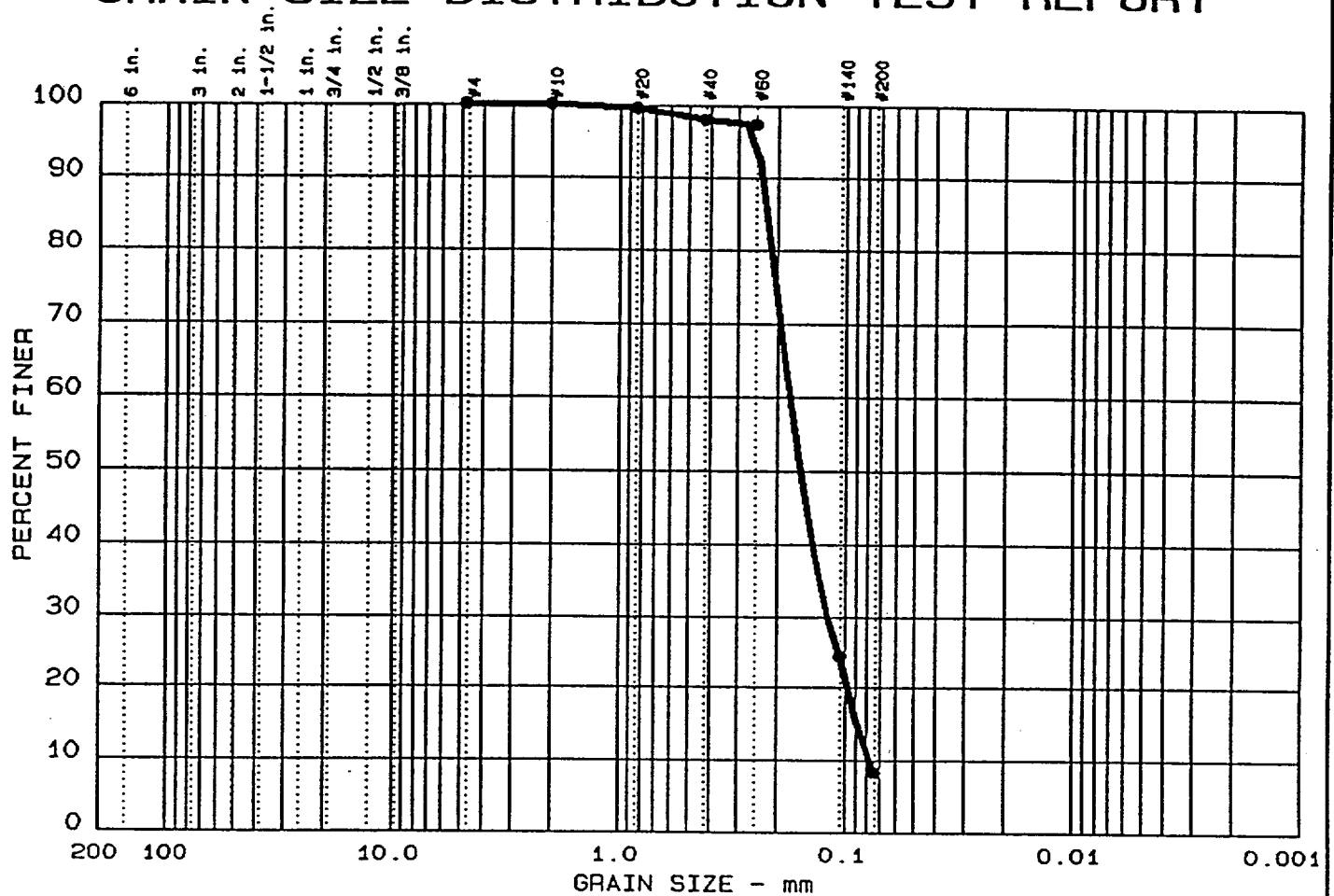
Project No.: 50161-7-0108 Task 21
Project: F-Area Northeast Expansion
● Location: FB-17SS-71 @ 114.0-115.5 Ft.

Date: June 23, 1998

Remarks:
Tested by: *SCJ Jim*
Reviewed by: *Hs*
Moisture Content = 24.6%
ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 1	0.0	0.0	91.7	8.3	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.22	0.18	0.16	0.120	0.0882	0.0776	1.05	2.3

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-72 @ 115.5-117.67 Ft.

Date: June 23, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC

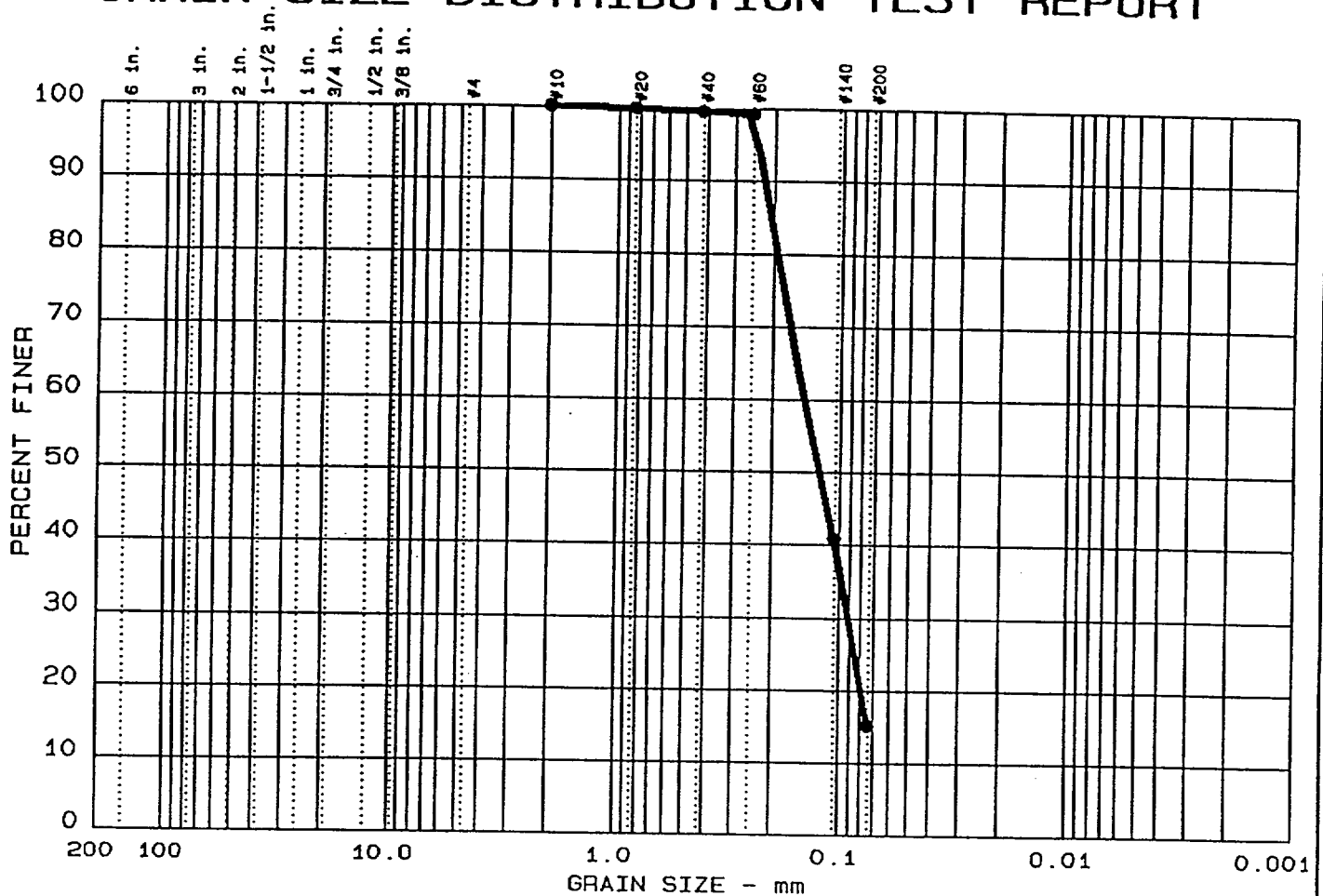
Reviewed by: HP

Moisture Content = 33.5%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
14	0.0	0.0	84.8	15.2	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.21	0.14	0.12	0.091				

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-17 SS-73 @ 118.0-119.5 Ft.
 Date: June 25, 1998

Remarks:

Tested by: CS & SC

Reviewed by: HS

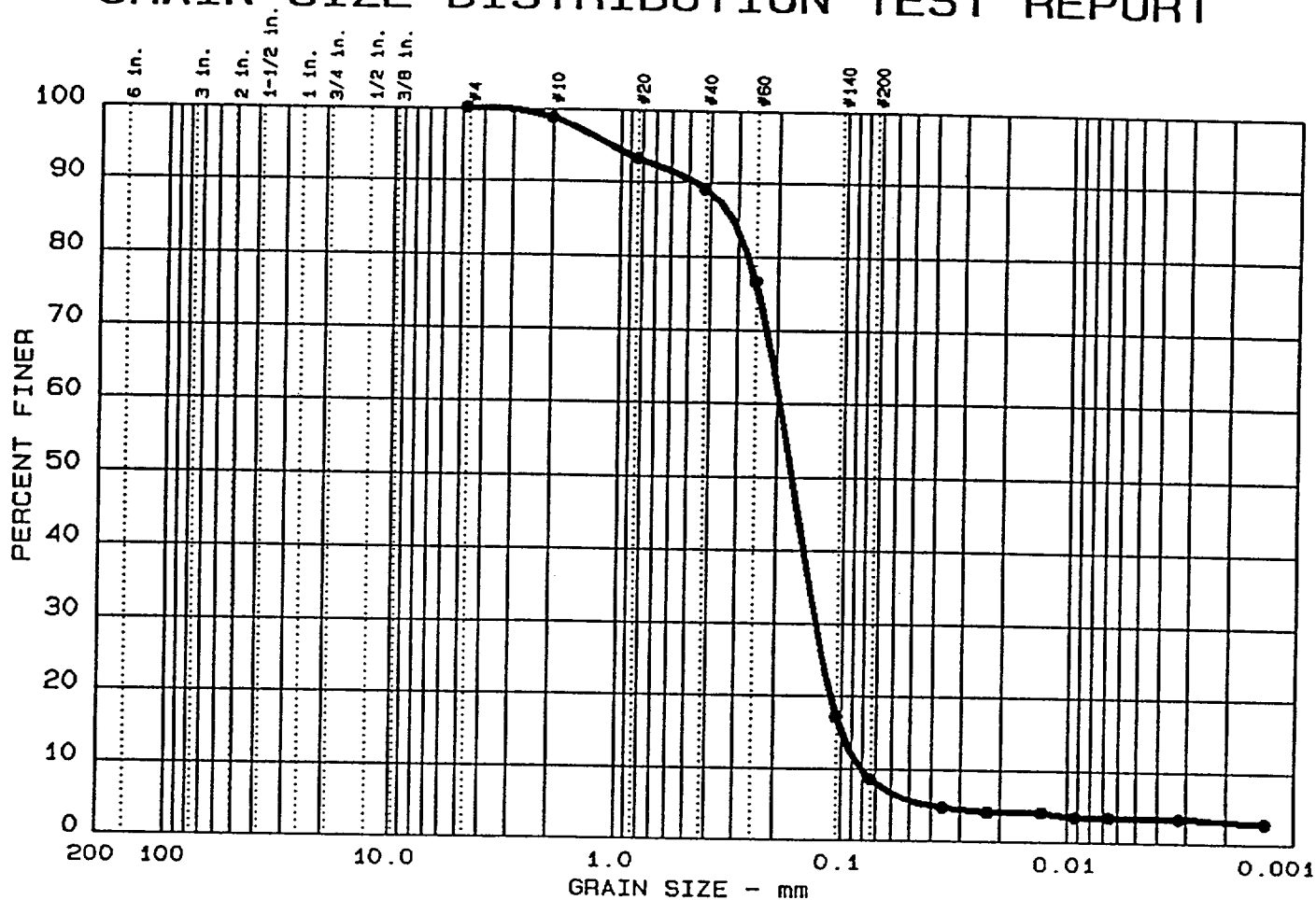
Moisture Content = 27.0%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
7	0.0	0.0	91.3	5.2	3.5

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
NL	NP	0.32	0.19	0.17	0.131	0.0993	0.0807	1.10	2.4

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Poorly Graded Sand with Silt	SP-SM	A-3

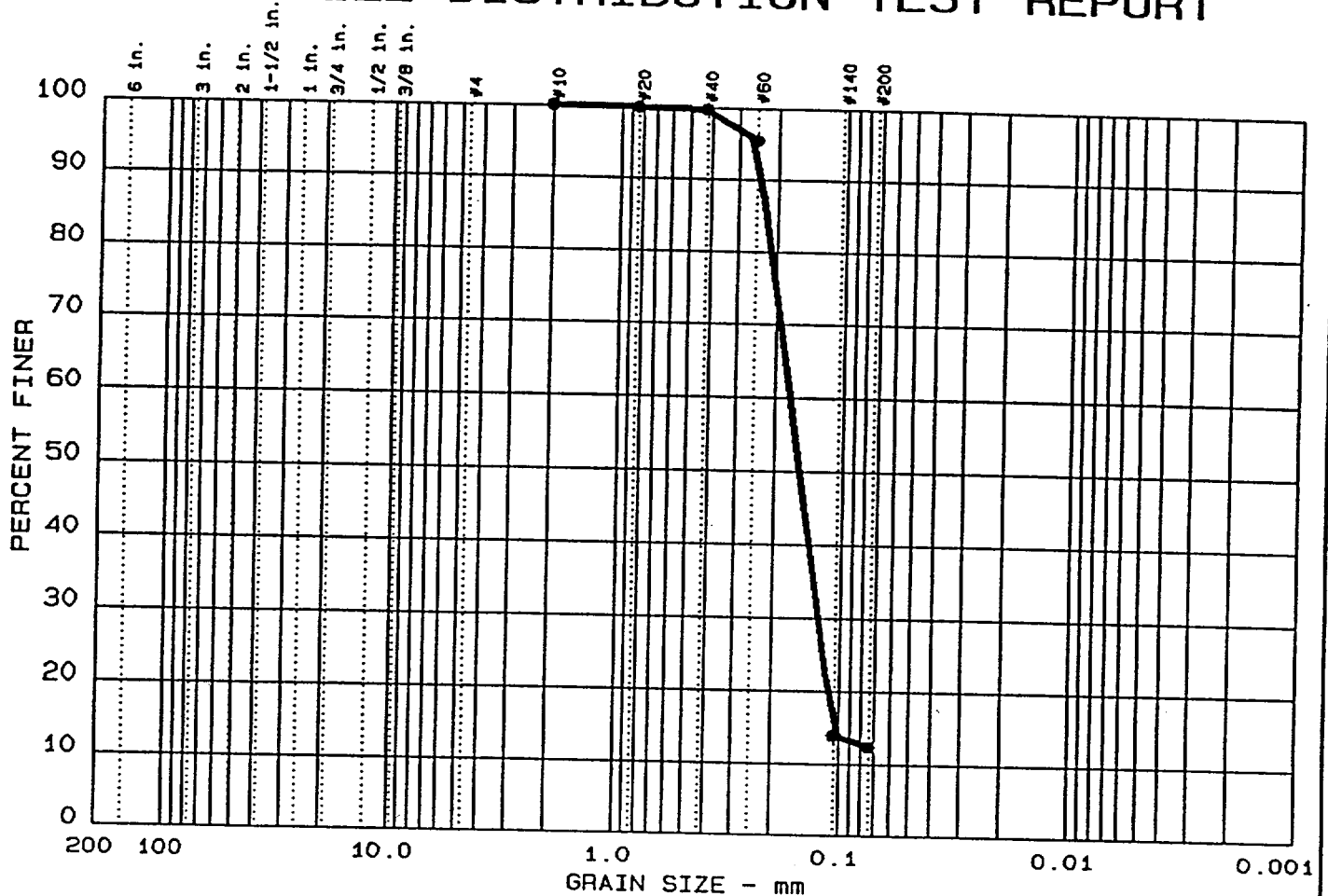
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-17 SS-76 @ 122.5-124.0 Ft.
 Date: June 23, 1998

Remarks:
 Tested by: SC + Jm
 Reviewed by: [Signature]
 Moisture Content = 24.7%
 ASTM D422, D4318 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 2	0.0	0.0	87.6	12.4	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.22	0.17	0.15	0.124	0.1060			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Silty Sand	SM	A-2-4 (0.3)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-78 @ 125.5-127.0 Ft.

Date: June 23, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC

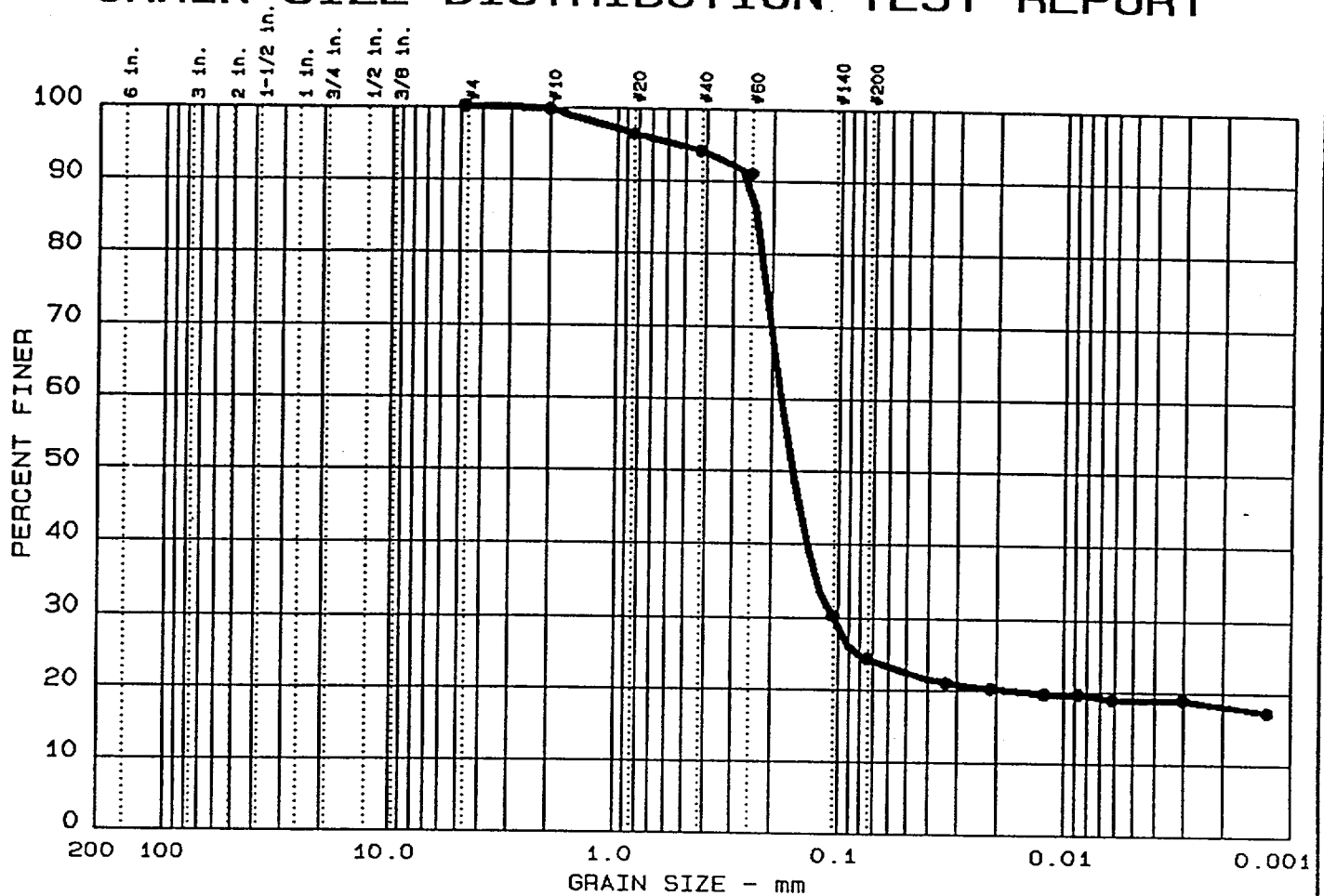
Reviewed by: H

Moisture Content = 39.4%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 10	0.0	0.0	75.6	5.5	18.9

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 46	21	0.23	0.18	0.16	0.104				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Clayey Sand	SC	A-2-7 (1.0)

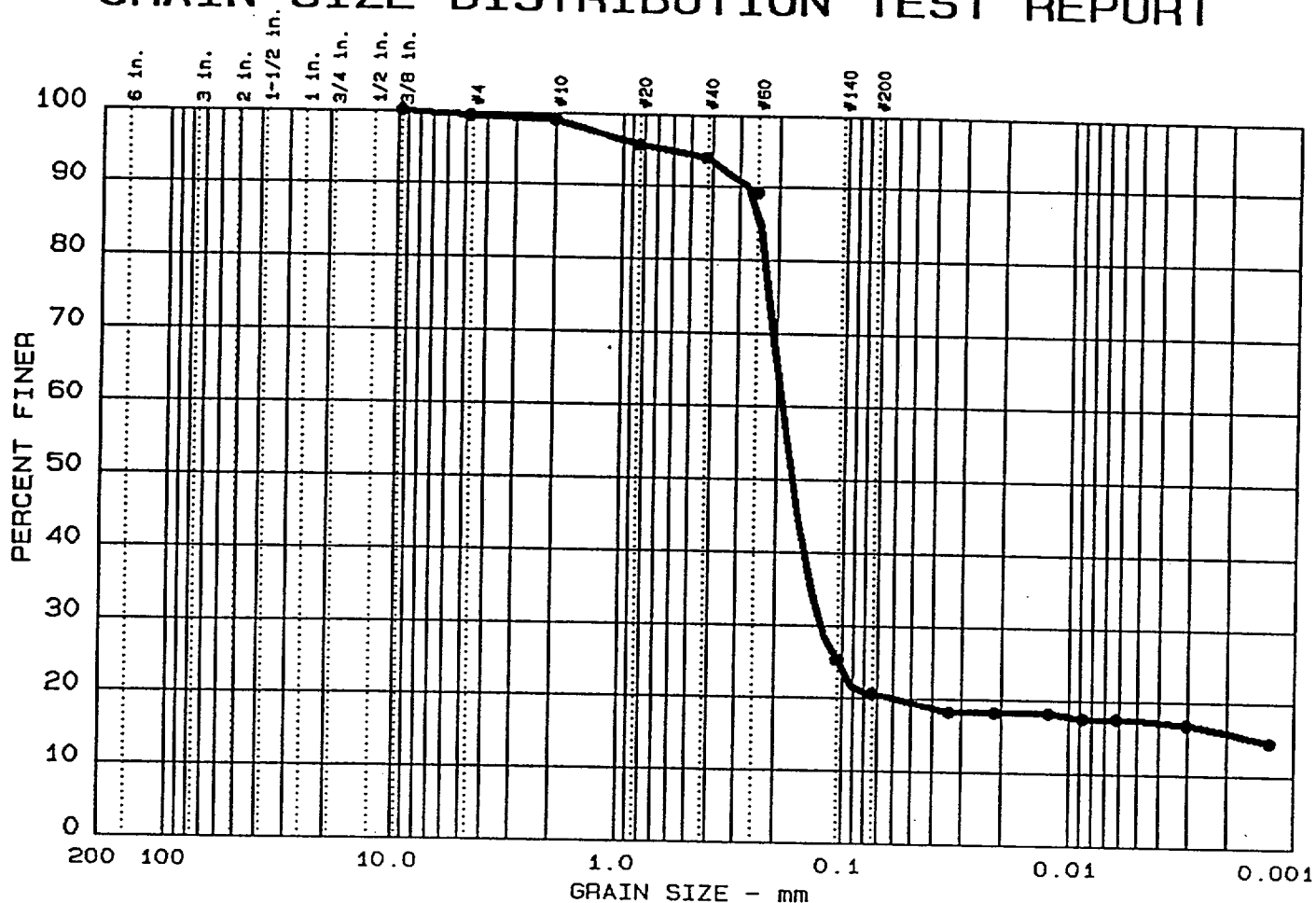
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-80 @ 128.5-130.0 Ft.
 Date: June 26, 1998

Remarks:
 Tested by: *SC + JTM*
 Reviewed by: *HJ*
 Moisture Content = 37.7%
 ASTM D422, D4318 & D2216

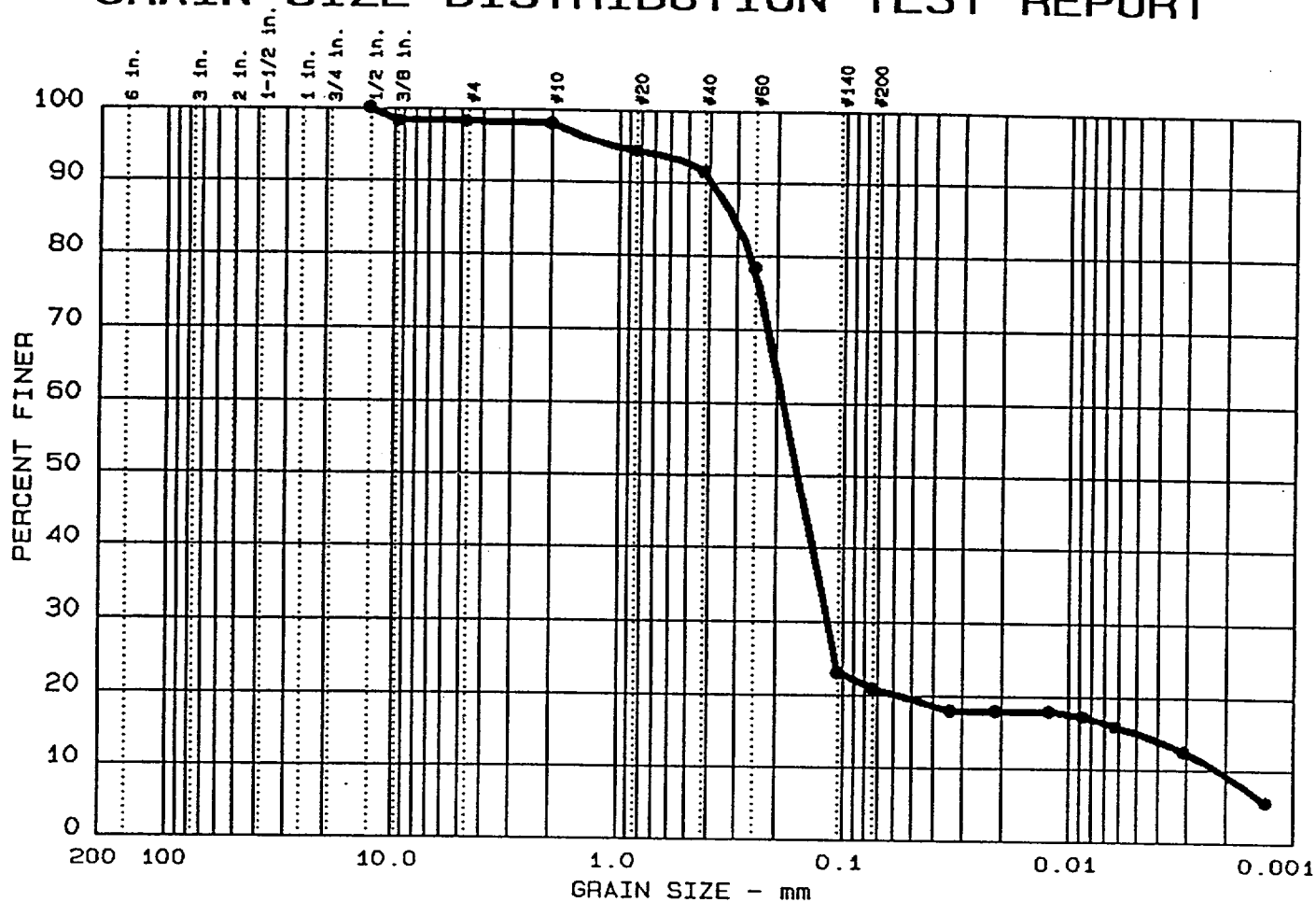
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 8	0.0	1.7	77.3	6.0	15.0

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● 42	19	0.31	0.19	0.16	0.117	0.0049	0.0022	34.00	86.8

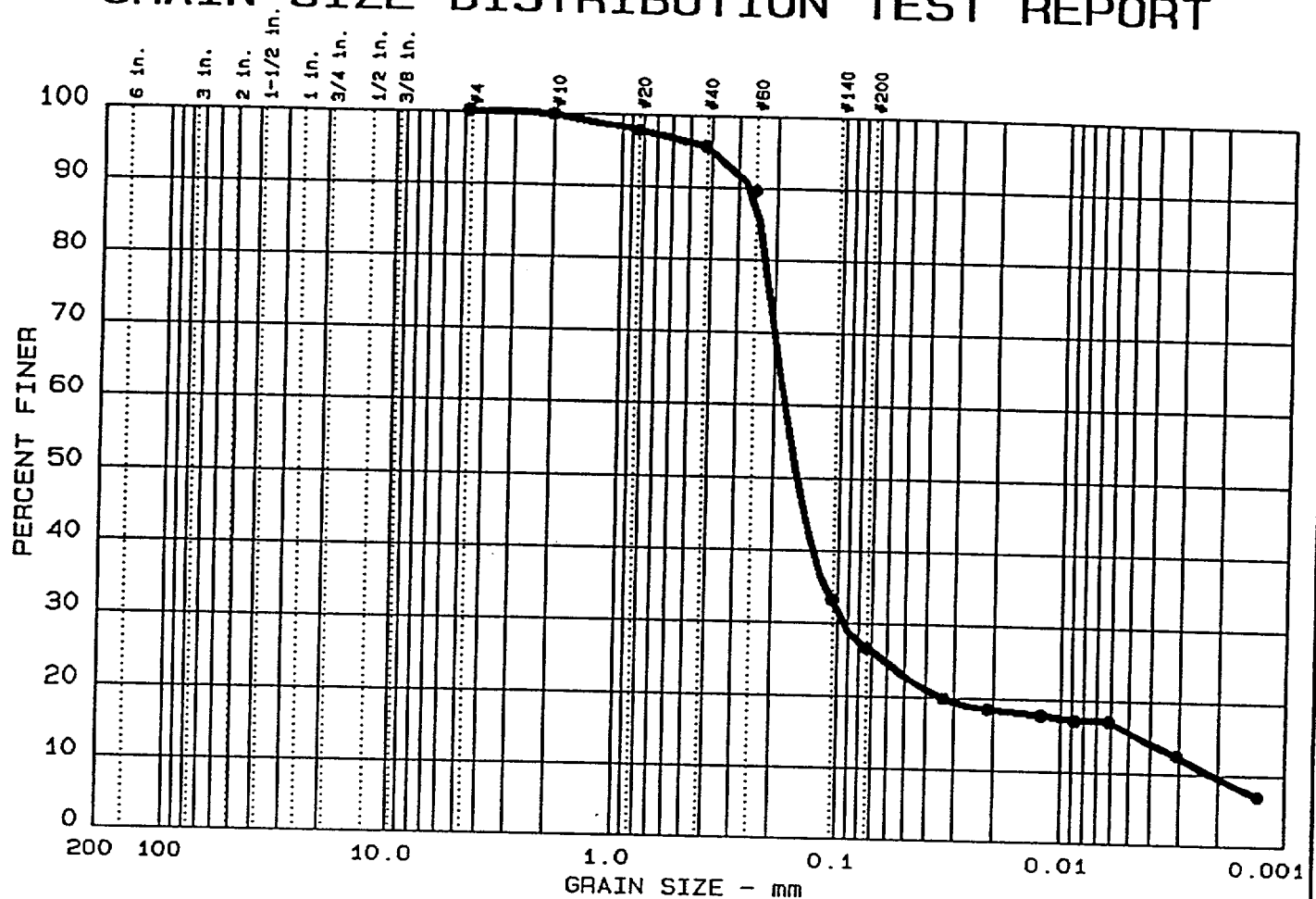
MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Clayey Sand	SC	A-2-7 (0.5)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-17 SS-83 @ 133.0-134.5 Ft.
 Date: June 26, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SC + DM*
 Reviewed by: *HB*
 Moisture Content = 36.1%
 ASTM D422, D4318 & D2216
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 8	0.0	0.0	73.4	10.9	15.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● 38	16	0.24	0.18	0.15	0.094	0.0045	0.0021	23.50	83.0

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Clayey Sand	SC	A-2-6 (0.7)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-17 SS-85 @ 136.0-137.5 Ft.

Date: June 26, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC Johnson*

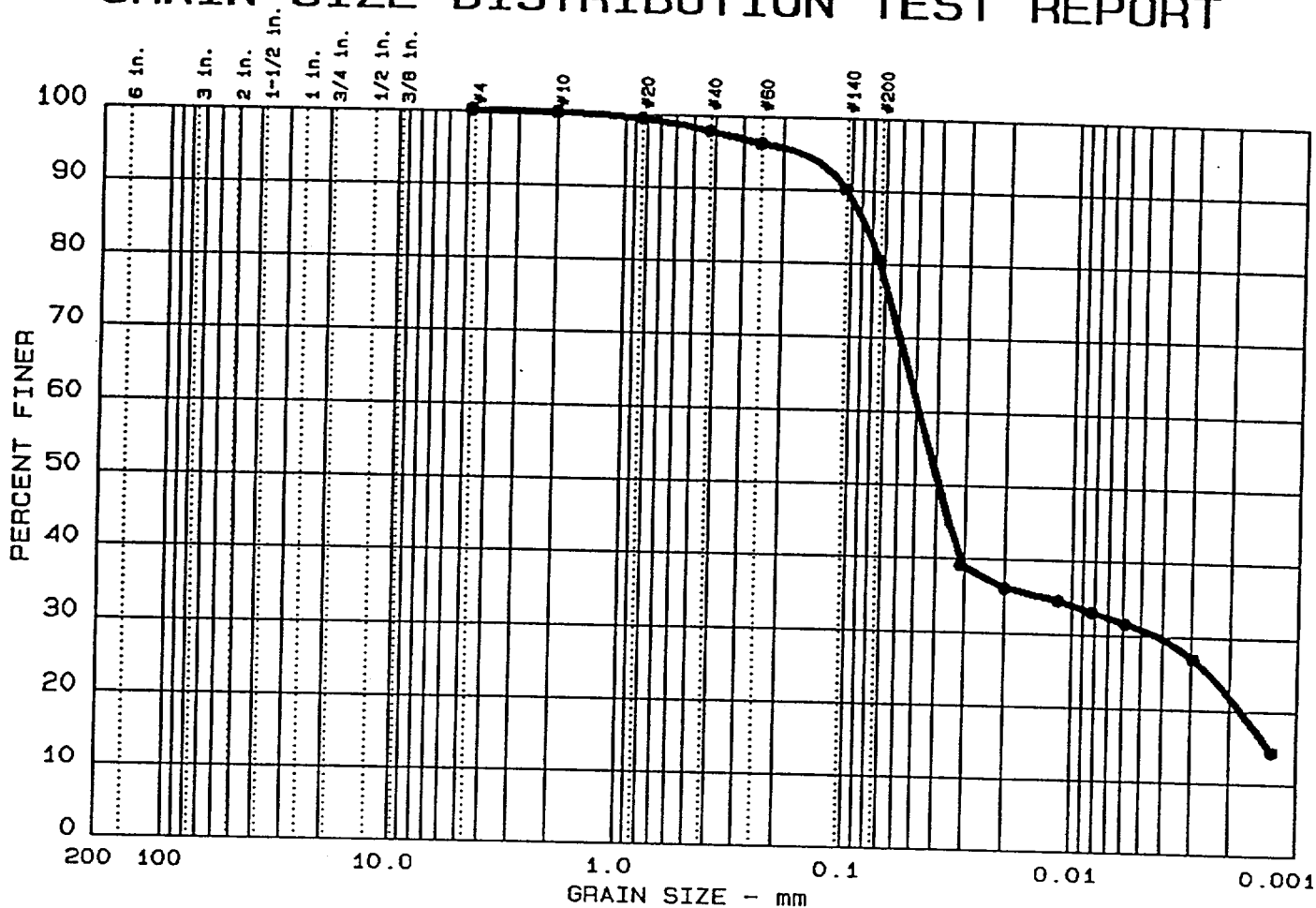
Reviewed by: *HS*

Moisture Content = 31.8%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 6	0.0	0.0	19.4	49.8	30.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 60	35	0.09		0.04	0.004	0.0013			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Sandy Fat Clay	CH --	A-7-6 (30.3)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-17 SS-87 @ 139.0-140.5 Ft.

Date: June 30, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SCCS + DM*

Reviewed by: *WJ*

Moisture Content = 53.0%

ASTM D422, D4318 & D2216

Figure No.

Grain size distribution curve for Test Report No. 1. The graph plots Percent Finer (0-100) against Grain Size in mm (log scale, 200 to 0.001). The curve shows a material that is nearly 100% finer than 1.0 mm, with a sharp drop between 0.1 mm and 0.075 mm, and a tail extending down to 0.001 mm.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
30	100
20	100
15	100
10	100
7.5	100
5	100
4	100
3	100
2	100
1.5	100
1.0	100
0.75	98
0.6	92
0.5	85
0.425	80
0.375	75
0.3	65
0.25	55
0.2	50
0.15	48
0.125	45
0.106	42
0.09	40
0.075	38
0.06	37
0.05	36
0.0425	35
0.0375	34
0.03	33
0.025	32
0.02	31
0.015	30
0.0125	29
0.0106	28
0.009	27
0.0075	26
0.006	25
0.005	24
0.00425	23
0.00375	22
0.003	21
0.0025	20
0.002	19
0.0015	18
0.00125	17
0.00106	16
0.0009	15
0.00075	14
0.0006	13
0.0005	12
0.000425	11
0.000375	10
0.0003	9
0.00025	8
0.0002	7
0.00015	6
0.000125	5
0.000106	4
0.00009	3
0.000075	2
0.00006	1
0.00005	0

[illegible]

Project No.: 50161-7-0108 Task 21
Project: F-Area Northeast Expansion
◆ Location: FB-17 SS-88 @ 140.5-142.0 Ft.

Date: June 26, 1998

Remarks:

Tested by: SC Johnson

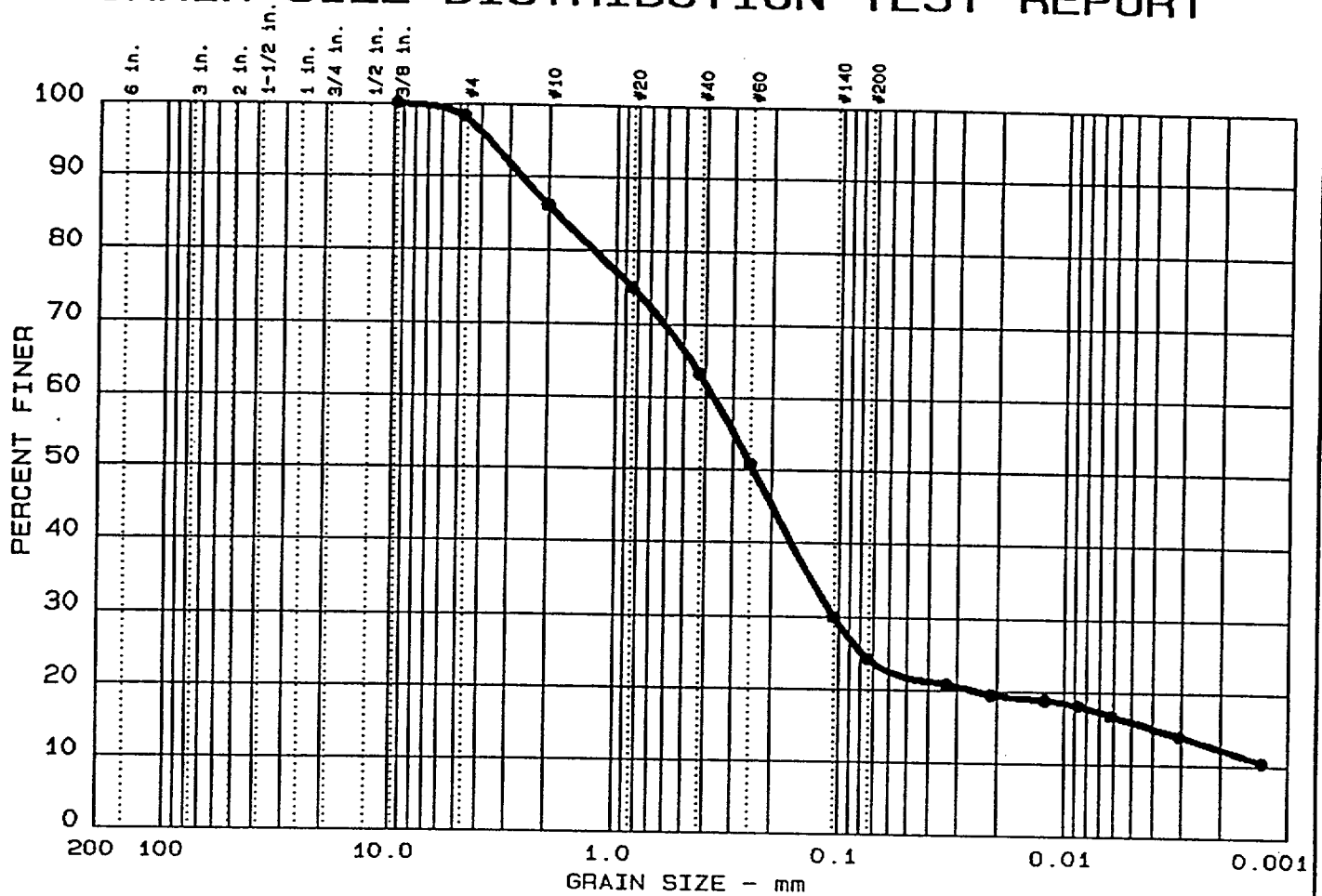
Reviewed by: HO

Moisture Content = 30.8%

ASTM D422, D431B & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 9	0.0	1.6	74.1	8.3	16.0

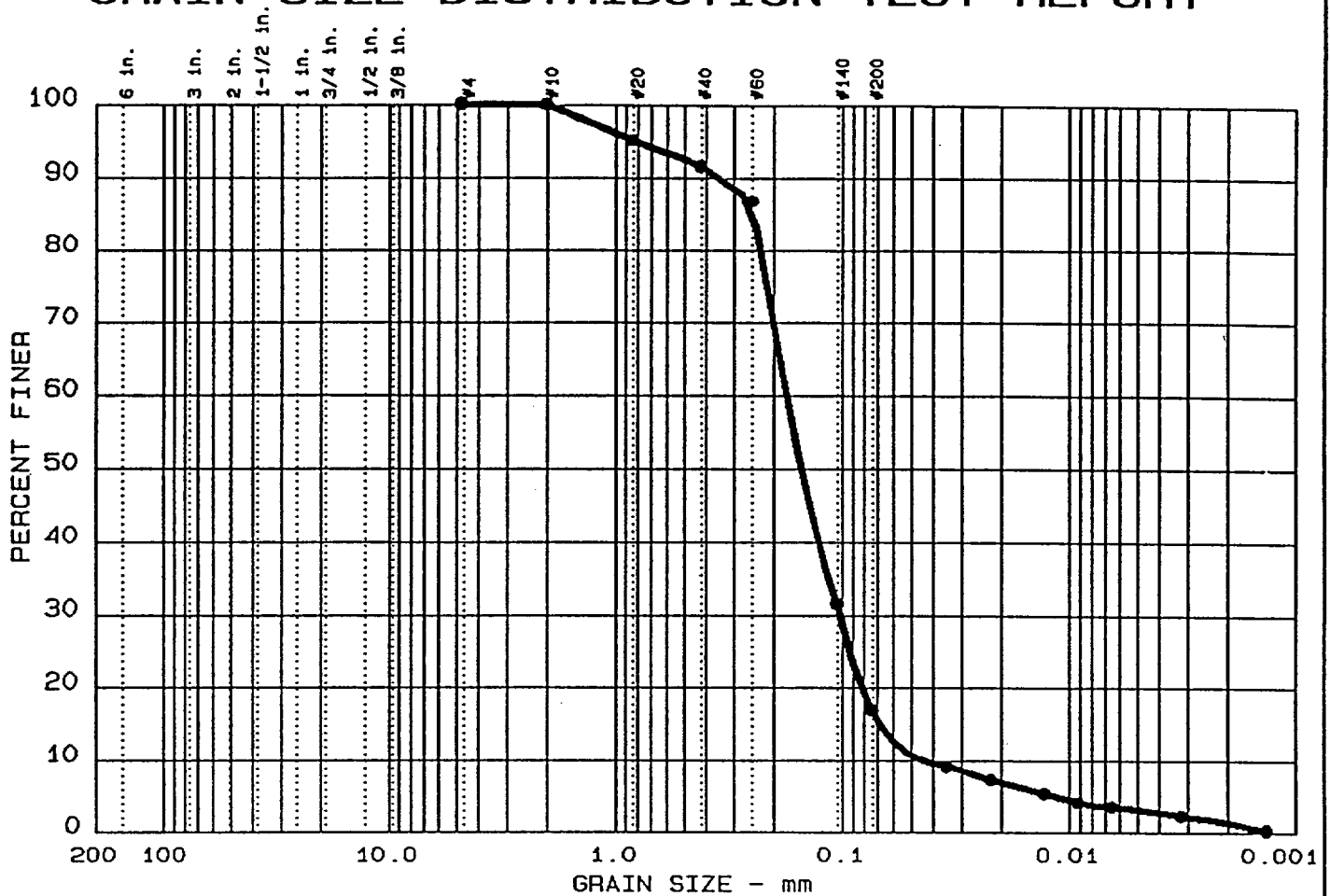
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● 60	38	1.84	0.36	0.24	0.105	0.0038			

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown & Gray Clayey Sand	SC	A-2-7(2-5)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-17 SS-89 @ 142.0-143.5 Ft.
 Date: June 26, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SCJ/DM*
 Reviewed by: *WJ*
 Moisture Content = 34.8%
 ASTM D422, D4318 & D2216
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 3	0.0	0.0	83.0	13.9	3.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 32	8	0.24	0.18	0.15	0.102	0.0681	0.0430	1.38	4.1

MATERIAL DESCRIPTION	USCS	AASHTO
• Gray Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Notheast Expansion
 • Location: FB-17 SS-90 @ 143.5-145.0 Ft.

Date: June 30, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC Johnson*

Reviewed by: *H*

Moisture Content = 33.0%

ASTM D422, D4318 & D2216

Figure No.

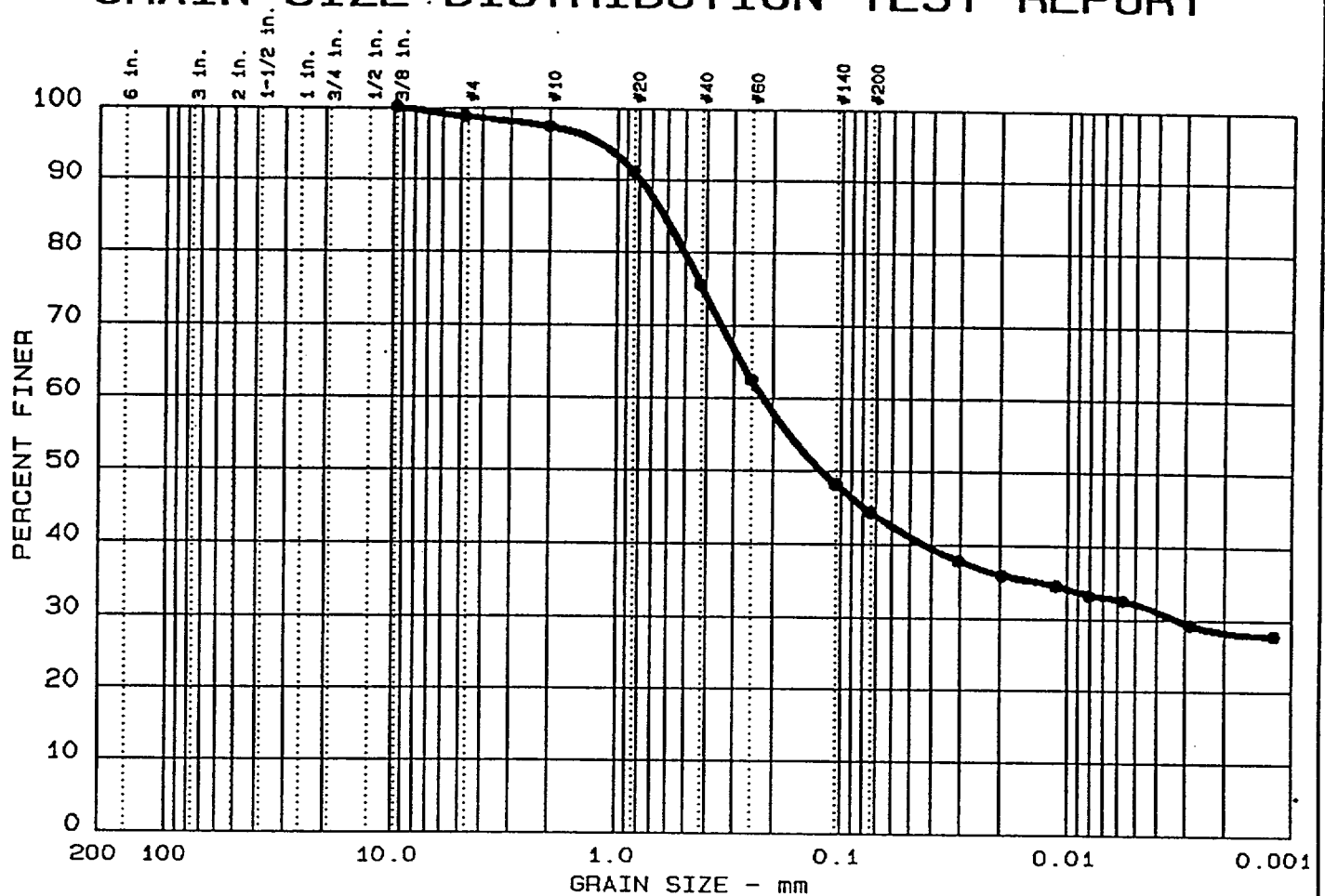
Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve is plotted on a semi-logarithmic scale. The Y-axis represents Percent Finer (0 to 100). The X-axis represents Grain Size in mm (logarithmic scale from 200 to 0.001). The curve shows a steep drop between 1 mm and 0.1 mm, indicating a well-graded material.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
5	100
2.5	100
1.0	95
0.6	85
0.425	75
0.3	65
0.25	55
0.15	40
0.1	25
0.075	20
0.06	18
0.05	16
0.04	15
0.03	14
0.025	13
0.02	12
0.015	11
0.01	10
0.0075	10
0.006	10
0.005	10
0.004	10
0.003	10
0.002	10
0.001	10

	LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●	22	6	0.77	0.33	0.25	0.130	0.0214			
				.						

<p>Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion ◆ Location: FB-20 SS-1 @ 6.0 Ft.</p> <p>Date: June 30, 1998</p>	<p>Remarks:</p> <p>Tested by: <i>SC ES WPM</i></p> <p>Reviewed by: <i>HO</i></p> <p>Moisture Content = 13.8%</p> <p>ASTM D422, D4318 & D2216</p> <p>Figure No.</p>
<p>GRAIN SIZE DISTRIBUTION TEST REPORT</p> <p>LAW ENGINEERING, INC.</p>	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 7	0.0	1.3	54.4	12.2	32.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 61	32	0.61	0.22	0.12	0.003				

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown & Tan-Clayey Sand	SC	A-7-6 (9.1)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-3 @ 9.0 Ft.

Date: June 26, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC + TM*

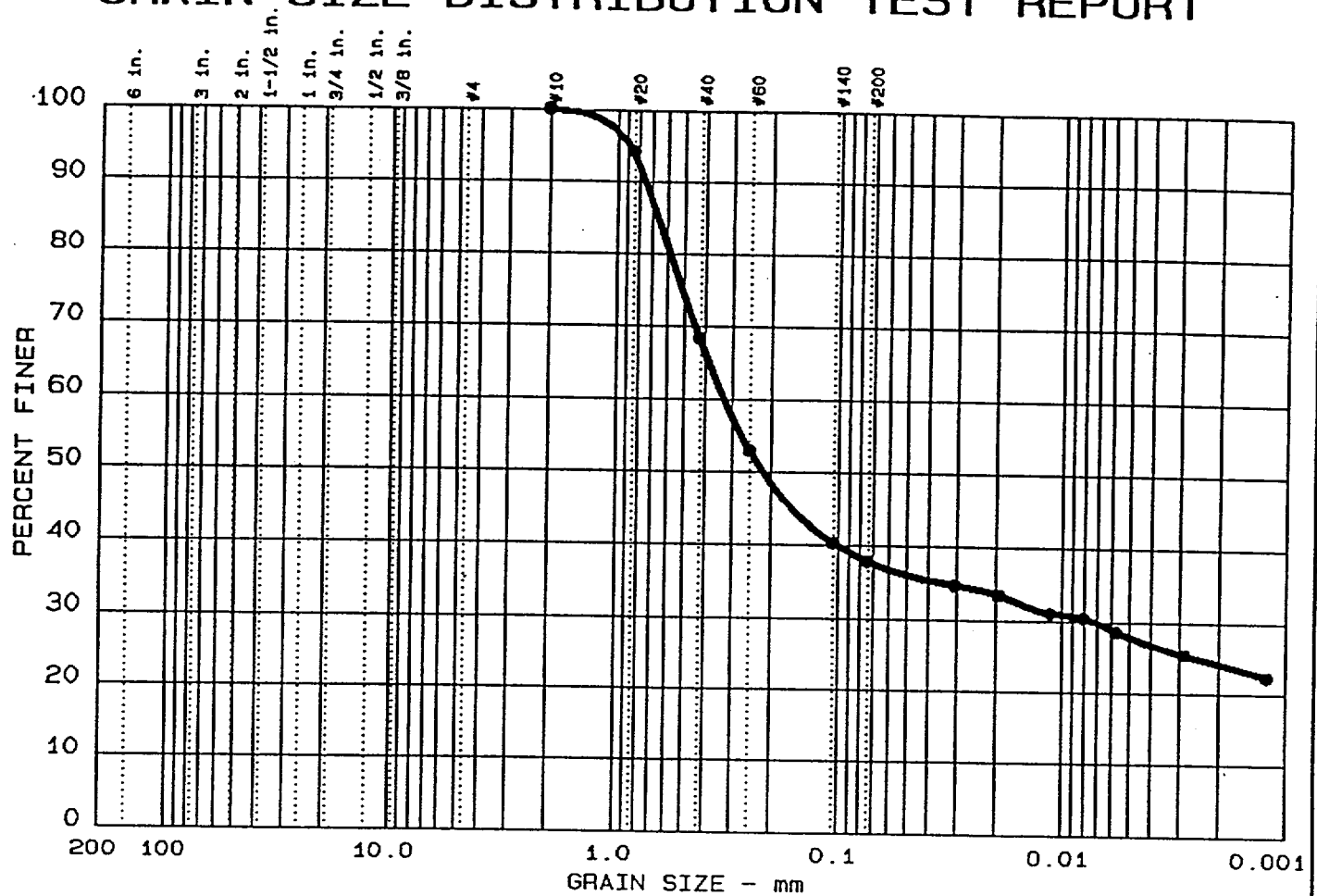
Reviewed by: *HB*

Moisture Content = 22.9%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
9	0.0	0.0	62.2	10.0	27.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
61	32	0.65	0.33	0.22	0.007				

MATERIAL DESCRIPTION	USCS	AASHTO
Red Brown & Purple Clayey Sand	SC	A-7-6 (6.0)

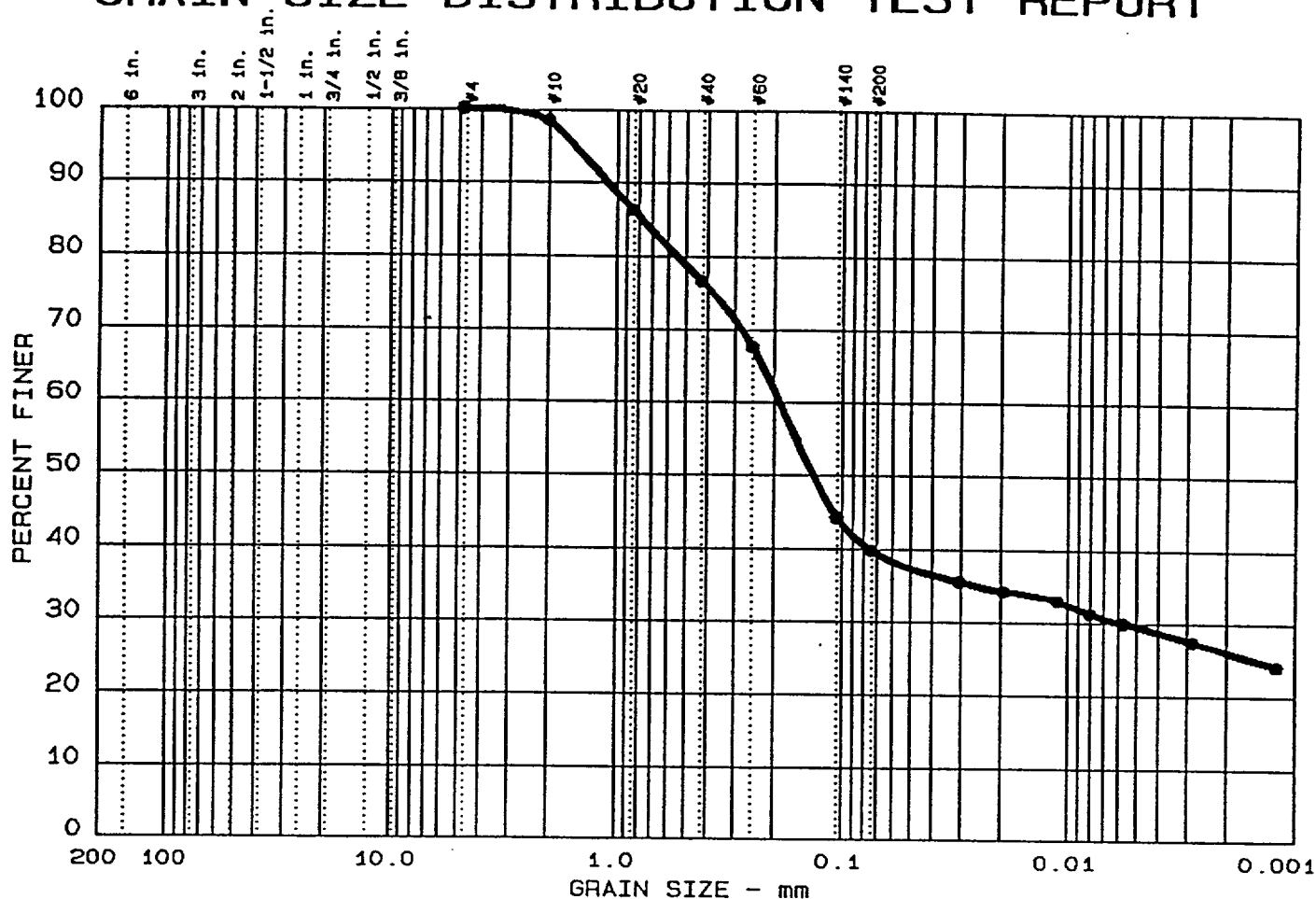
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-20 SS-5 @ 12.0 Ft.
 Date: June 26, 1998

Remarks:
 Tested by: *SC + 8cm*
 Reviewed by: *KS*
 Moisture Content = 18.8%
 ASTM D422, D4318 & D2216

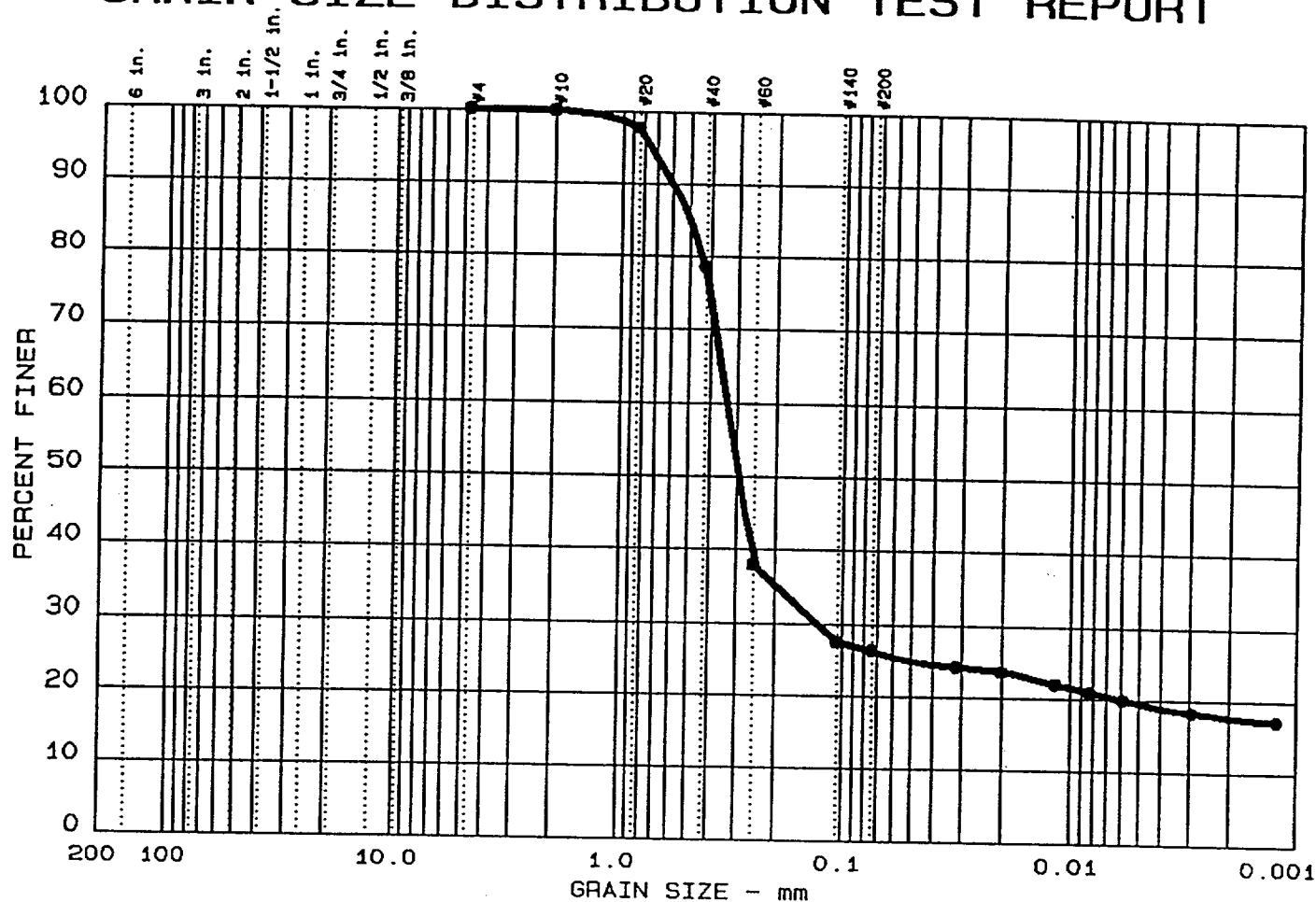
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

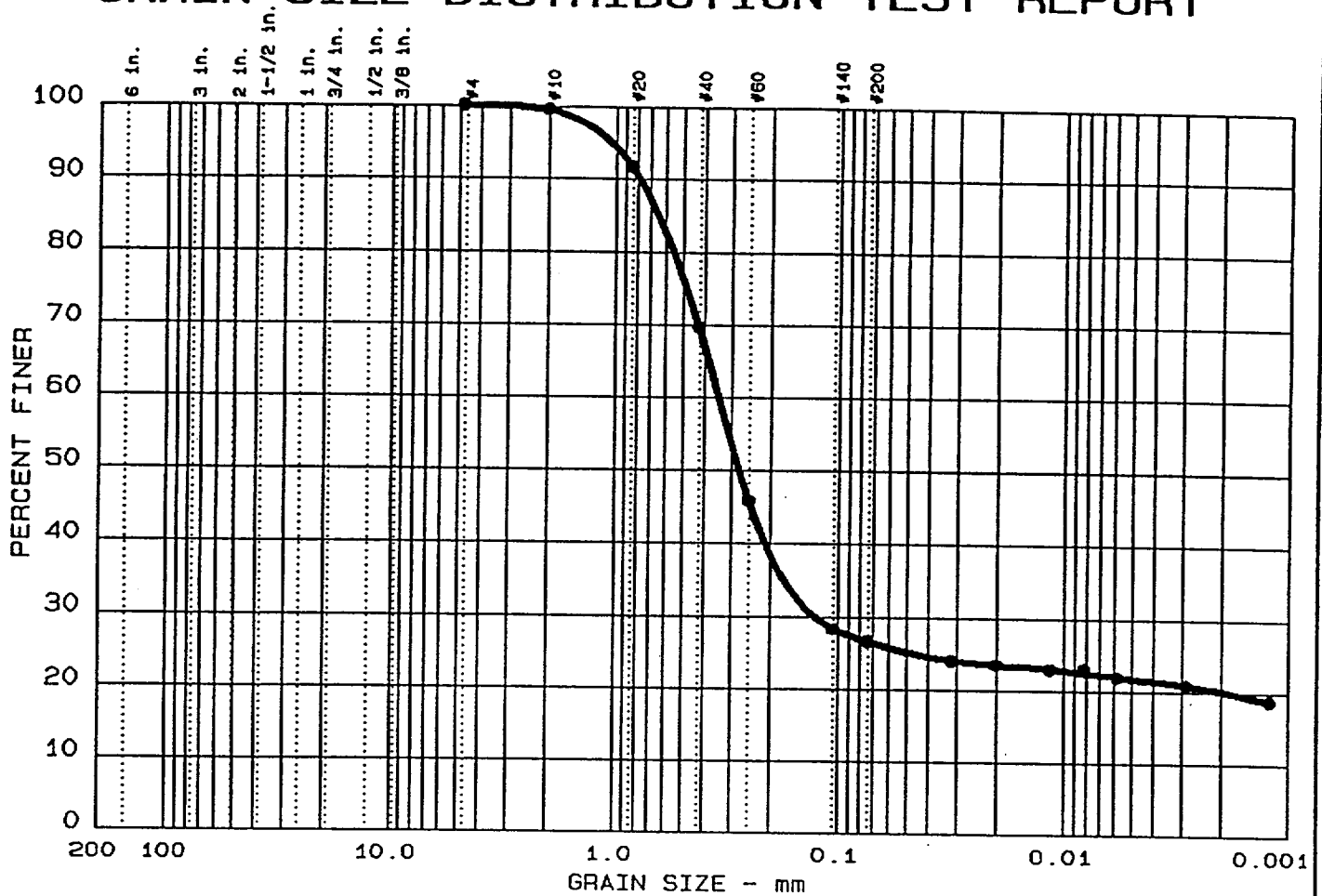
GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 3	0.0	0.0	73.4	4.8	21.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 42	22	0.64	0.34	0.28	0.126				

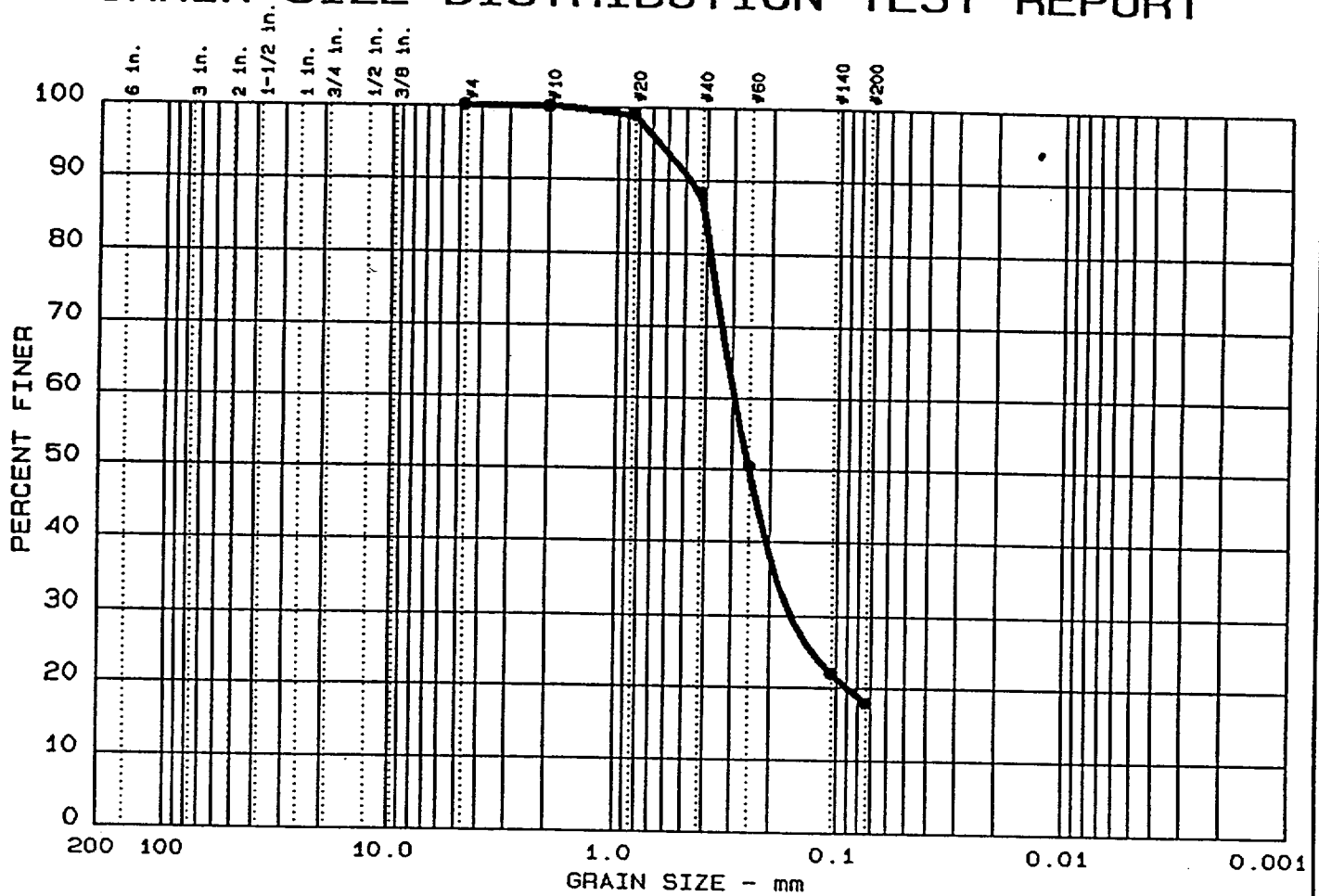
MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Clayey Sand	SC	A-2-7 (1.4)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-13 @ 24.0 Ft.
 Date: June 26, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SC + Jm*
 Reviewed by: *HJ*
 Moisture Content = 20.8%
 ASTM D422, D4318 & D2216
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 3	0.0	0.0	82.0	18.0	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.40	0.29	0.25	0.160				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-17 @ 30.0 Ft.

Date: June 23, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SGJ/STm*

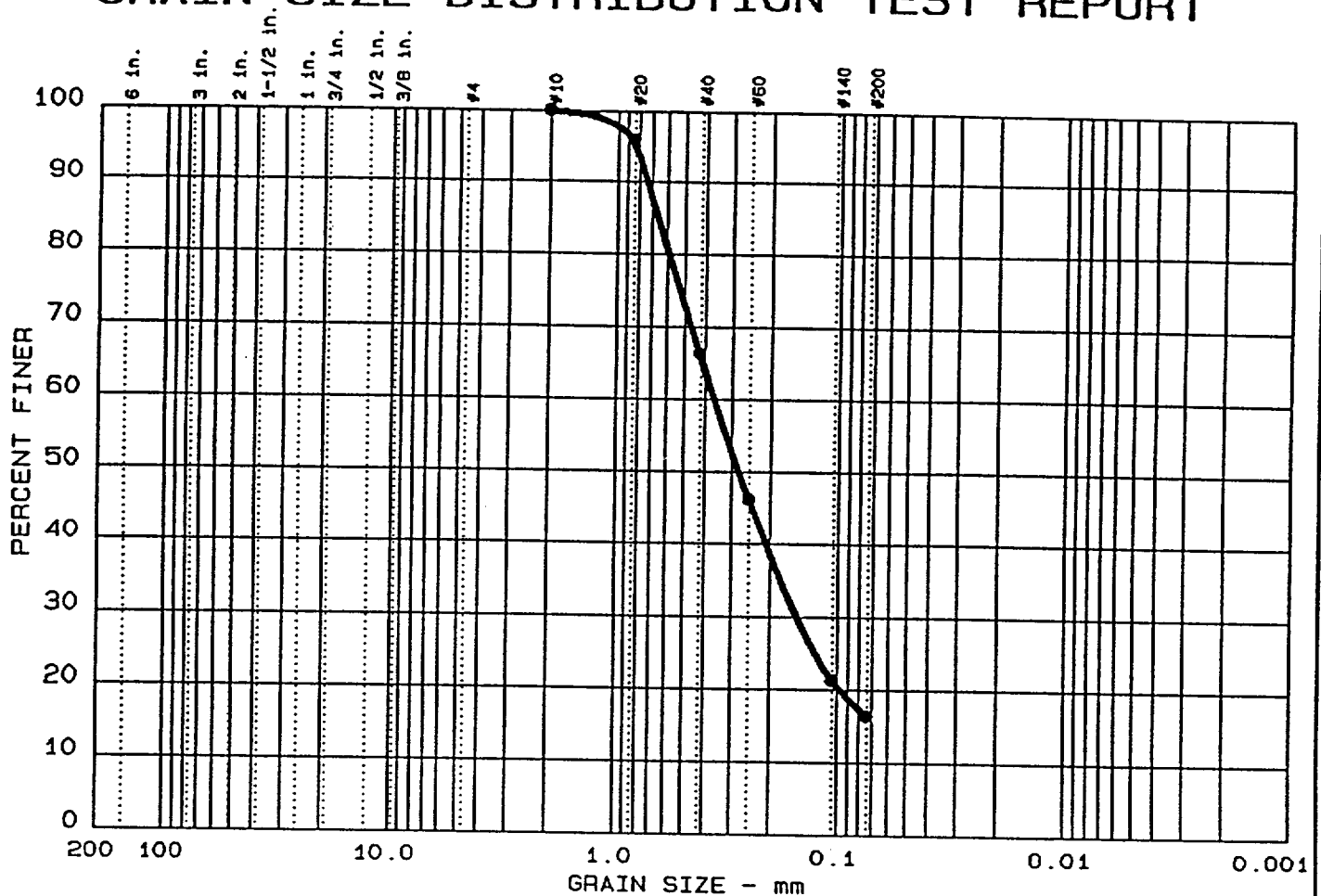
Reviewed by: *KB*

Moisture Content = 15.7%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 11	0.0	0.0	83.6	16.4	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.65	0.36	0.28	0.152				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-21 @ 36.0 Ft.
 Date: June 23, 1998

Remarks:

Tested by: SC

Reviewed by: HJ

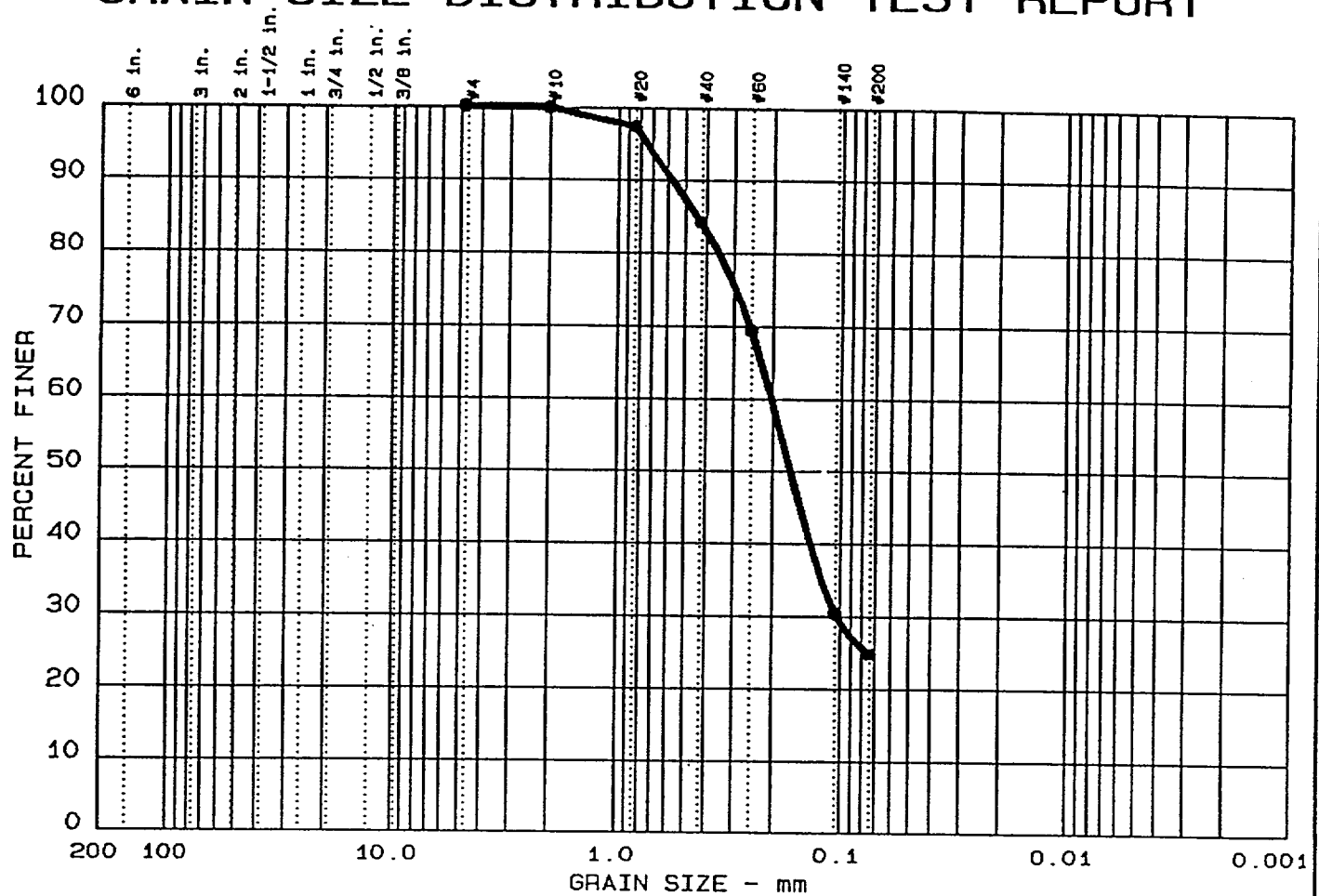
Moisture Content = 17.5%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
 LAW ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• B	0.0	0.0	75.2	24.8	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.43	0.20	0.17	0.103				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan-Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-26 @ 43.5 Ft.
 Date: June 25, 1998

Remarks:

Tested by: SC+CS

Reviewed by: AD

Moisture Content = 19.1%

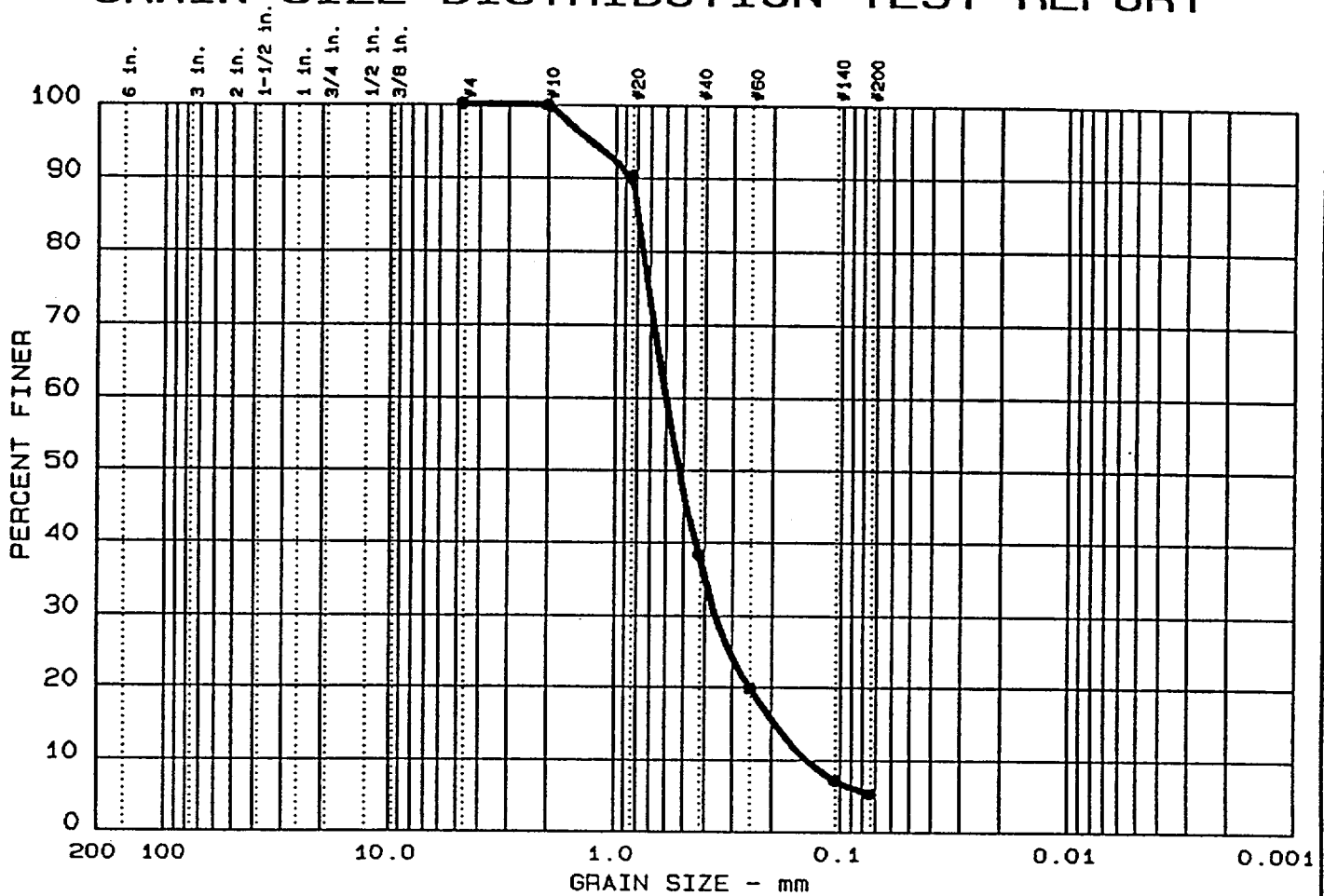
ASTM D422 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 12	0.0	0.0	94.7	5.3	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.79	0.59	0.52	0.357	0.1936	0.1387	1.55	4.3

MATERIAL DESCRIPTION	USCS	AASHTO
• Red Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-20 SS-30 @ 49.5 Ft. Date: June 23, 1998	Remarks: Tested by: SC Reviewed by: HB Moisture Content = 17.0% ASTM D422 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve is plotted on a semi-logarithmic scale. The Y-axis represents Percent Finer (0 to 100). The X-axis represents Grain Size in mm (logarithmic scale from 200 to 0.001). The curve shows a sharp drop in percent finer between 1.0 mm and 0.1 mm, indicating a well-graded material.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
50	100
25	100
12.5	100
6.3	100
3.15	100
1.6	100
0.85	100
0.425	100
0.25	100
0.15	100
0.10	98
0.075	85
0.06	60
0.0475	45
0.0375	15
0.03	14
0.025	13
0.02	12
0.015	11
0.0125	10
0.01	9
0.0075	8
0.006	7
0.005	6
0.004	5
0.003	4
0.0025	3
0.002	2
0.0015	1
0.001	0

[illegible]

Project No.: 50161-7-0108 Task 21
Project: F-Area Northeast Expansion
● Location: FB-20 SS-32 @ 52.5 Ft.

Date: June 30, 1998

Remarks:

Tested by: SC CST STM

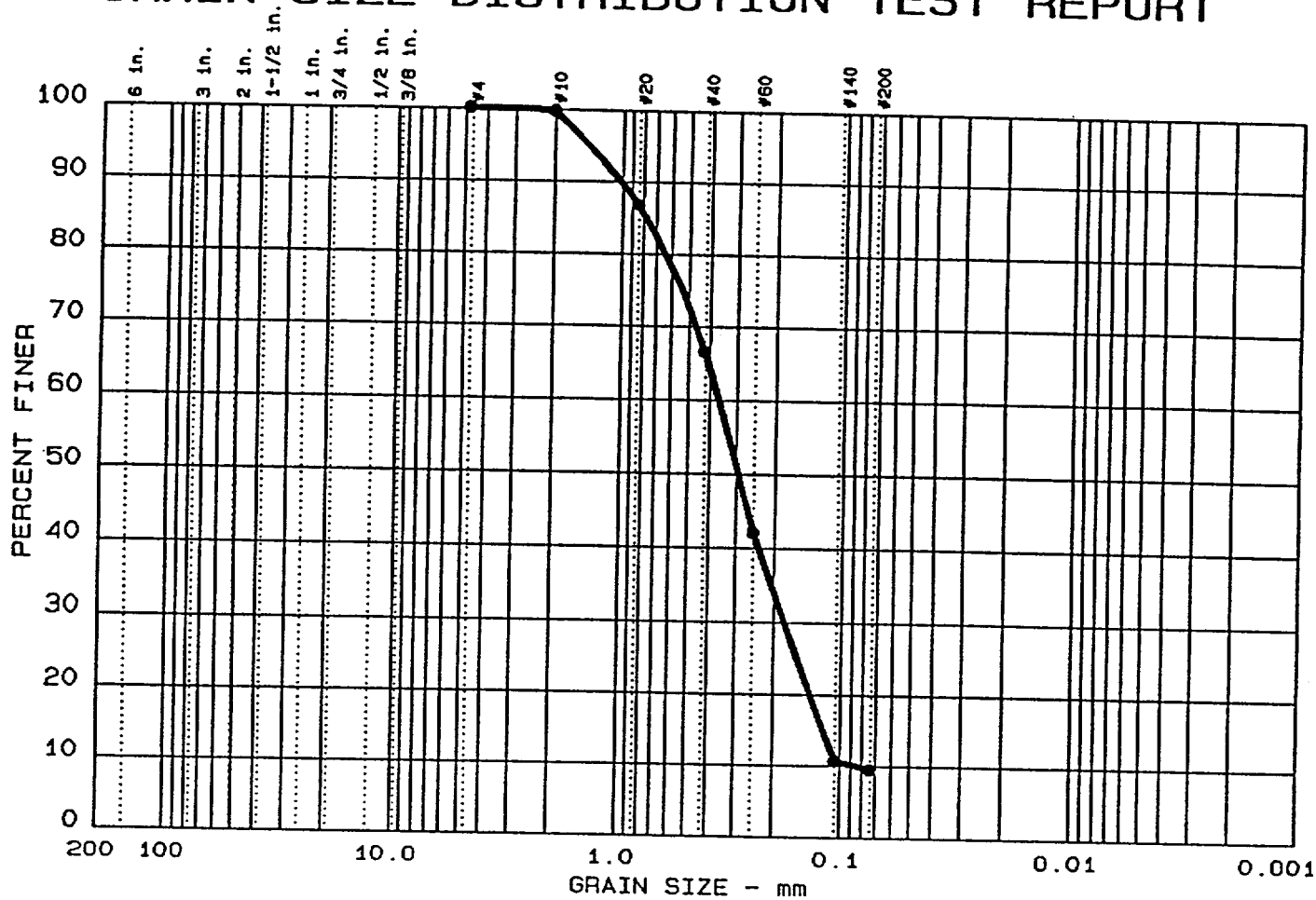
Reviewed by: HJ

Moisture Content = 17.2%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
13	0.0	0.0	90.5	9.5	

[illegible]

MATERIAL DESCRIPTION	USCS	AASHTO
● Red Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
Project: F-Area Northeast Expansion
● Location: FB-20SS-34 @ 55.5 Ft.

Date: June 23, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC

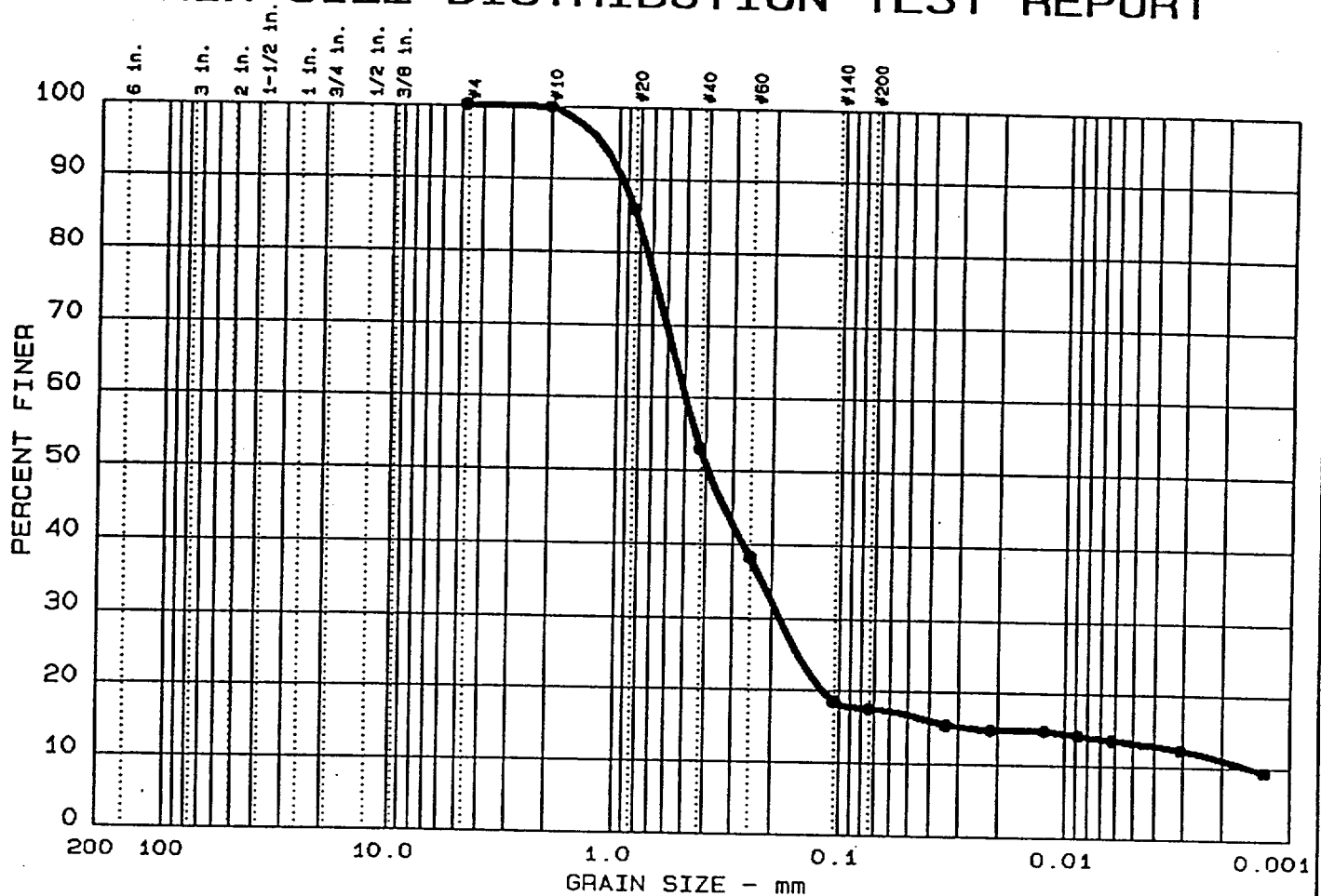
Reviewed by: HS

Moisture Content = 18.5%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 3	0.0	0.0	82.5	4.3	13.2

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 40	18	0.82	0.49	0.39	0.184	0.0237	0.0015	46.03	328.9

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan-Brown Clayey-Sand	SC	A-2-6(0.2)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-36 @ 58.5 Ft.
 Date: June 30, 1998

Remarks:

Tested by: SC, CS, STM

Reviewed by: *h*

Moisture Content = 19.5%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve is plotted on a semi-logarithmic scale. The Y-axis represents Percent Finer (0 to 100). The X-axis represents Grain Size in mm (logarithmic scale from 200 to 0.001). The curve shows a sharp drop in percent finer between 0.425 mm and 0.075 mm.

Grain Size (mm)	Percent Finer (%)
4.75	98
2.5	97
1.18	95
0.6	85
0.425	68
0.25	33
0.15	18
0.075	5
0.06	3

[illegible]

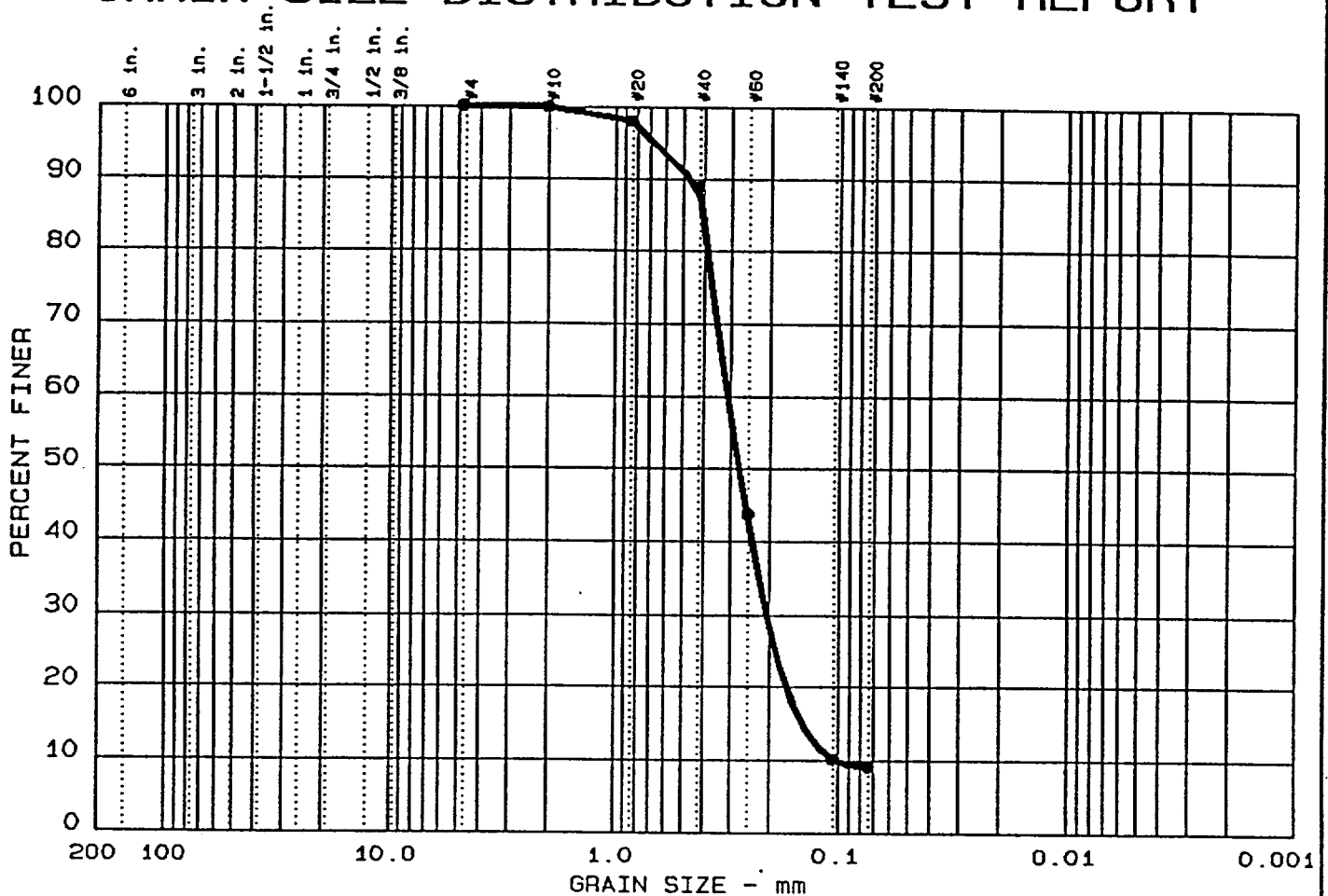
Project No.: 50161-7-0108 Task 21
Project: F-Area Northeast Expansion
◆ Location: FB-20 SS-38 @ 61.5 Ft.

Date: June 25, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 14	0.0	0.0	90.8	9.2	

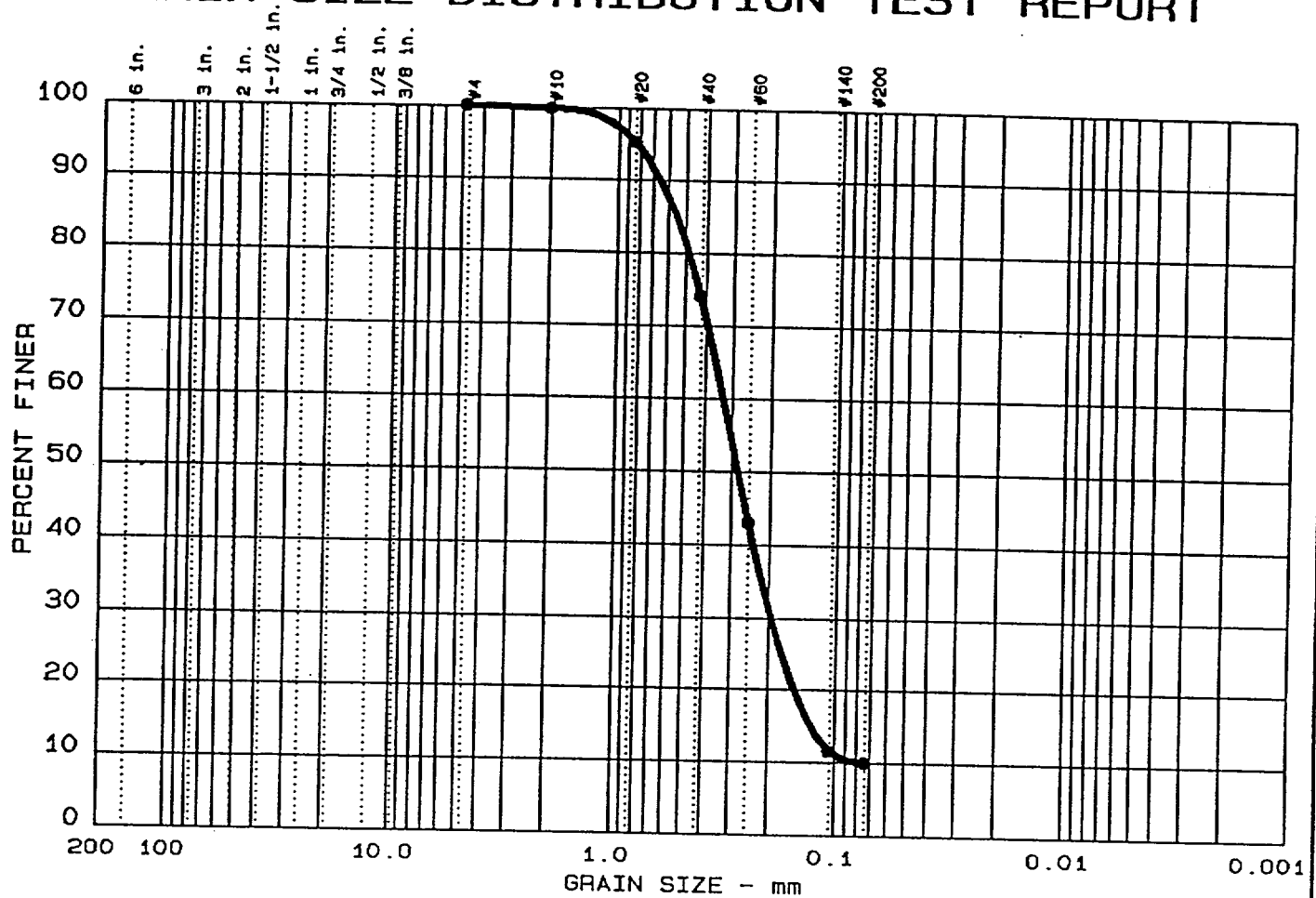
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.40	0.31	0.27	0.206	0.1426	0.1021	1.35	3.0

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

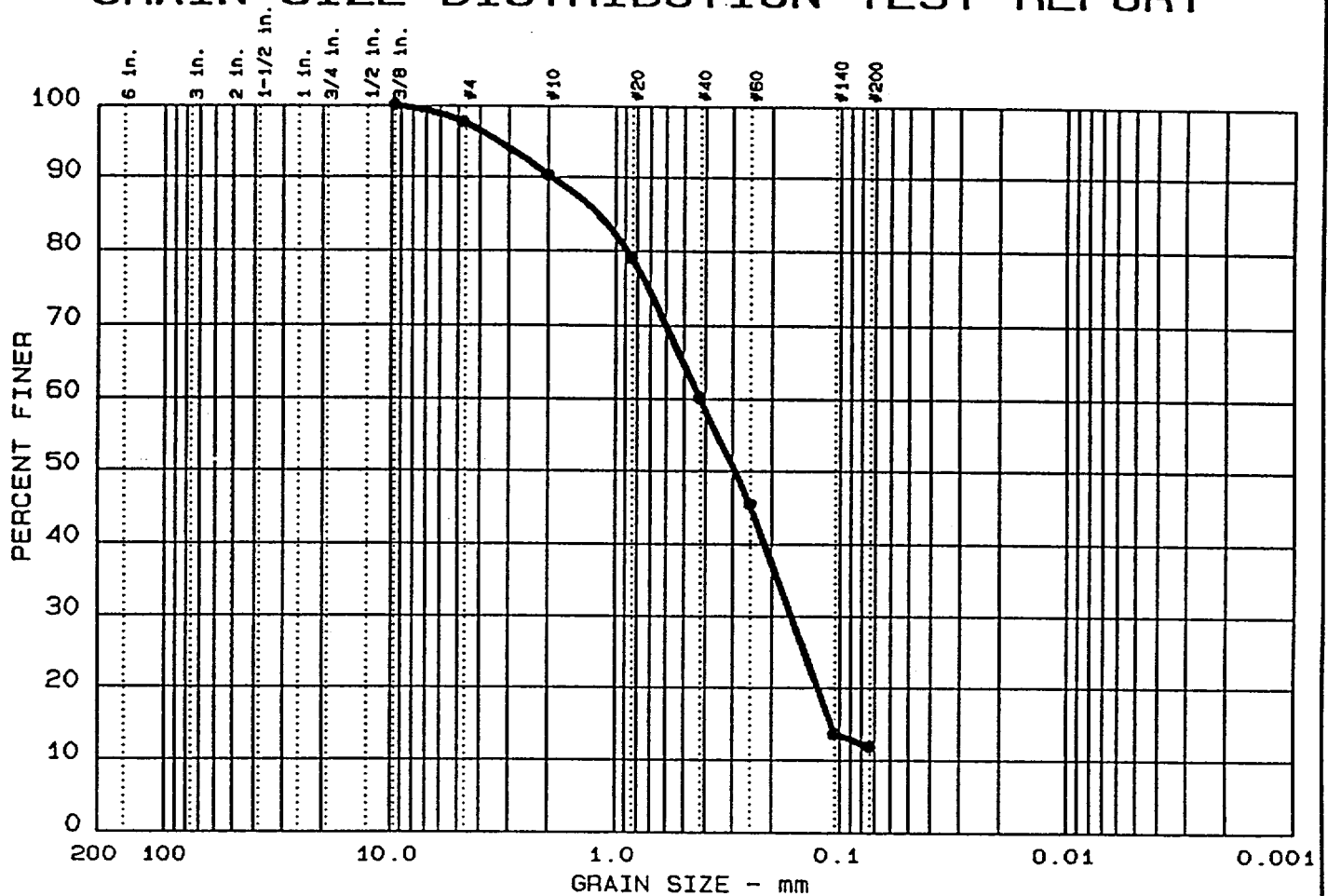
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-40 @ 64.5 Ft.
 Date: June 23, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: SC
 Reviewed by: HS
 Moisture Content = 22.5%
 ASTM D422 & D2216
 Figure No.

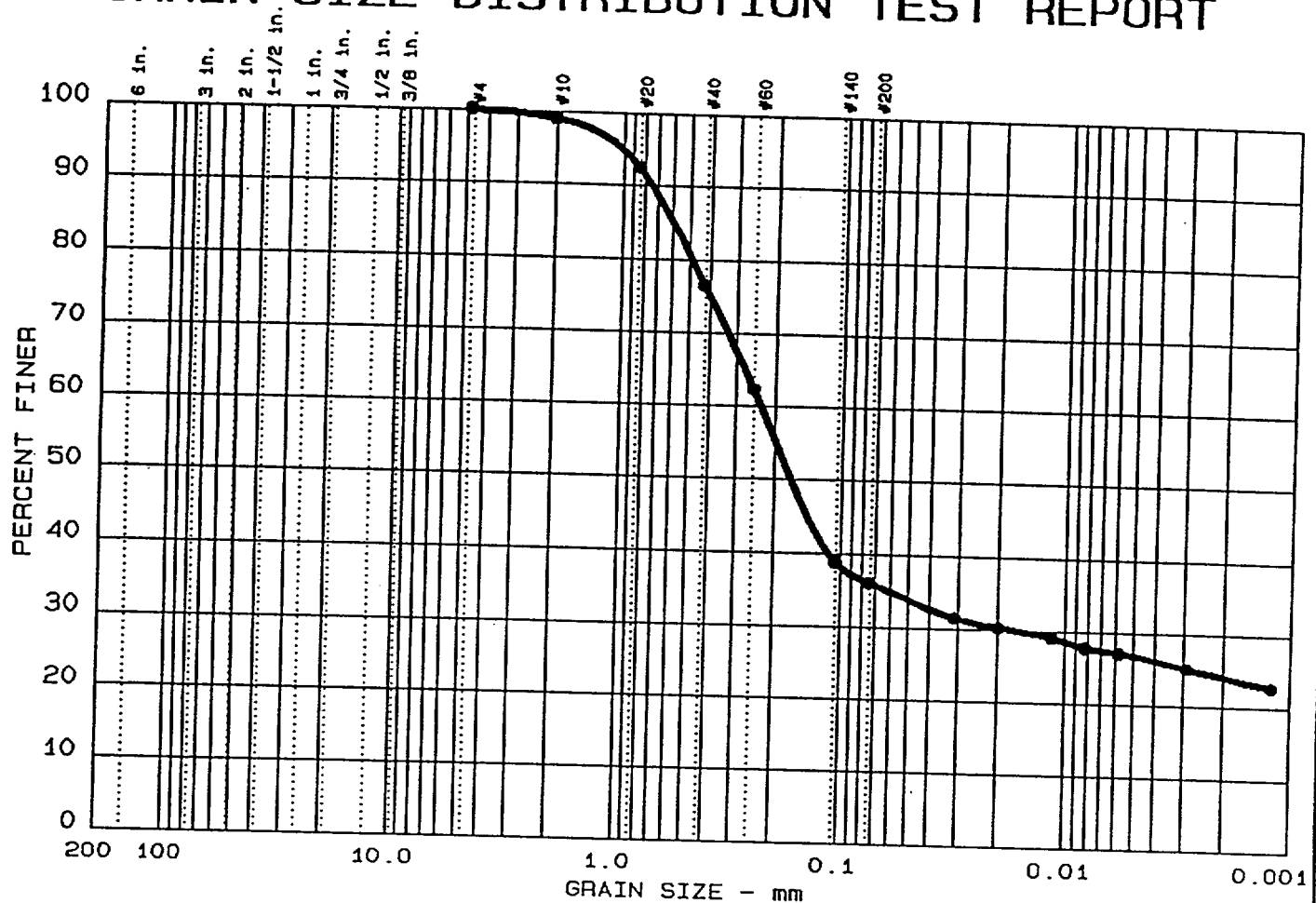
GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 2	0.0	0.0	64.0	9.2	26.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 47	21	0.58	0.23	0.17	0.017				

MATERIAL DESCRIPTION

• Tan Brown & Black Clayey Sand

USCS

SC

AASHTO

A-7-6 (2.5)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-48 @ 76.5 Ft.

Date: June 30, 1998

Remarks:

Tested by: *SC + Jem*

Reviewed by: *hb*

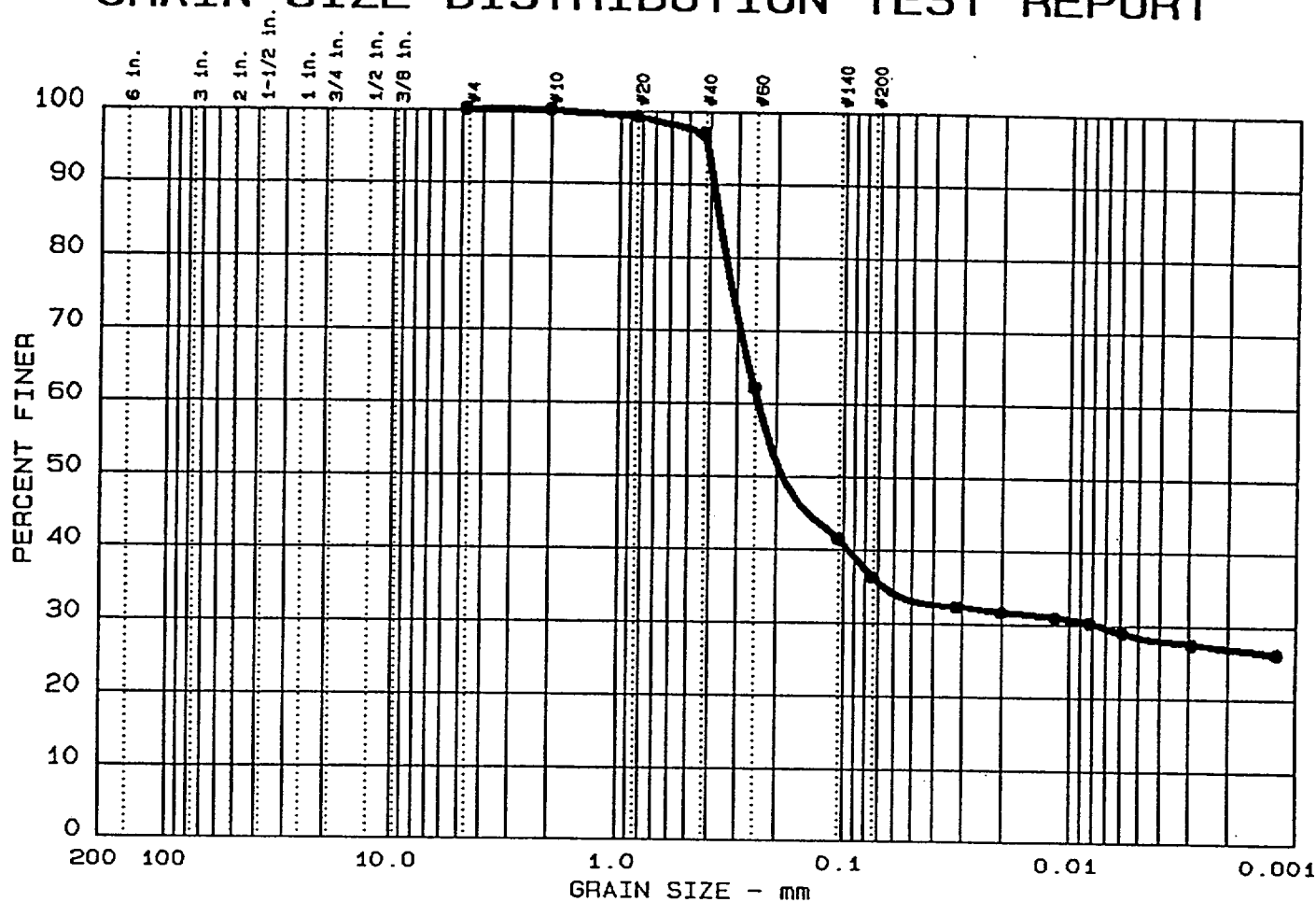
Moisture Content = 26.9%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 5	0.0	0.0	63.8	7.8	28.4

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 57	25	0.36	0.24	0.19	0.008				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Silty Sand	SM	A-7-5 (3.4)

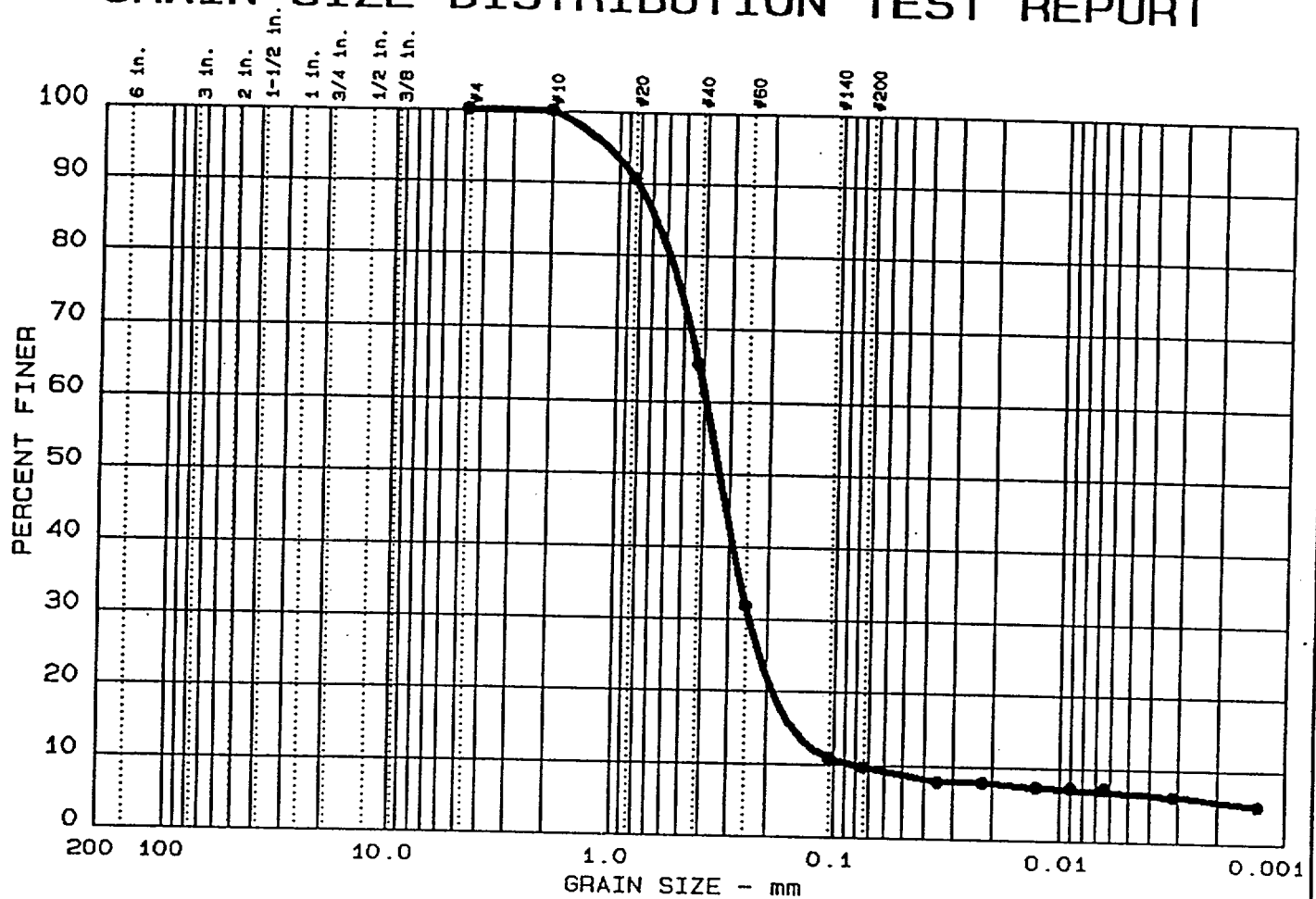
Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-20 SS-50 @ 79.5 Ft. Date: June 30, 1998	Remarks: Tested by: SC BS JTM Reviewed by: HB Moisture Content = 32.8% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve indicates a sharp drop in percent finer between 0.425 mm and 0.075 mm, suggesting a well-graded material with a narrow range of particle sizes.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
4.75	100
2.5	100
1.18	100
0.85	100
0.6	100
0.425	100
0.3	98
0.25	95
0.2	90
0.15	80
0.125	70
0.1	60
0.075	40
0.06	25
0.05	20
0.0425	18
0.0375	15
0.03	15
0.025	15
0.02	15
0.015	15
0.0125	15
0.01	15
0.0075	15
0.006	15
0.005	15
0.00425	15
0.00375	15
0.003	15
0.0025	15
0.002	15
0.0015	15
0.00125	15
0.001	15

[illegible]Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 10	0.0	0.0	90.3	3.1	6.6

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• NL	NP	0.67	0.39	0.33	0.241	0.1521	0.0807	1.86	4.8

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-54 @ 85.5 Ft.

Date: June 26, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC + SM*

Reviewed by: *HS*

Moisture Content = 22.4%

ASTM D422, D4318 & D2216

Figure No.

Grain size distribution test report graph showing Percent Finer vs Grain Size (mm). The curve starts at 100% finer for 200 mm and drops sharply between 1.0 mm and 0.075 mm, leveling off at approximately 5% finer for 0.075 mm and below.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
20	100
10	100
4.75	100
2.0	100
1.0	95
0.6	80
0.425	60
0.3	40
0.25	20
0.15	10
0.075	5
0.06	5

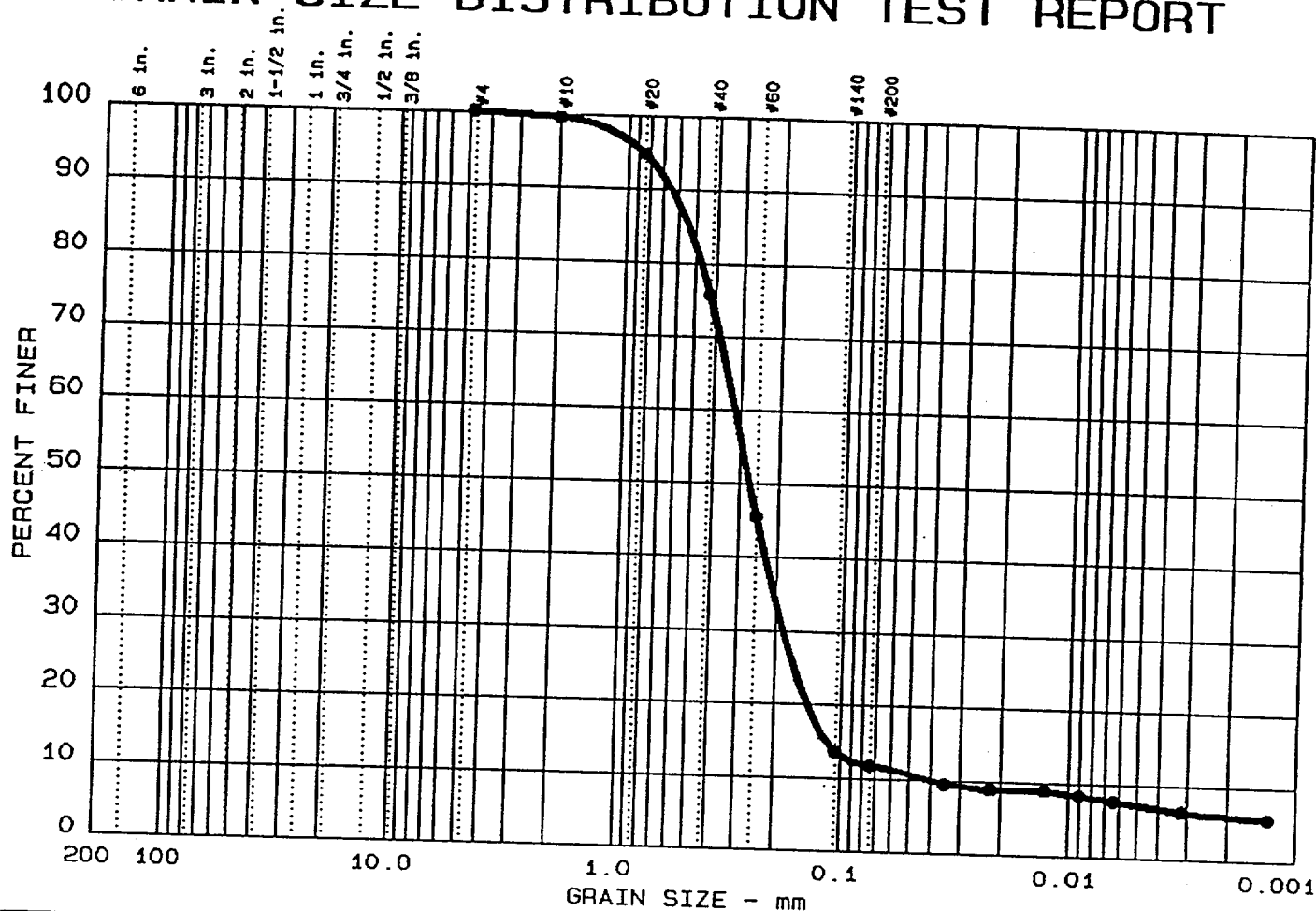
[illegible]

Project No.: 50161-7-0108 Task 21
Project: F-Area Northeast Expansion
● Location: FB-20 SS-56 @ 88.5 Ft.

Date: June 25, 1998

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
1	0.0	0.0	88.2	4.6	7.2

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
NL	NP	0.53	0.32	0.27	0.184	0.1149	0.0399	2.69	8.0

MATERIAL DESCRIPTION

- Tan Brown Well Graded Sand with Silt

USCS

SW-SM

AASHTO

A-2-4 (0.3)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Notheast Expansion
 Location: FB-20 SS-59 @ 93.0 Ft

Date: June 26, 1998

Remarks:

Tested by: *SCJ/DM*

Reviewed by: *H*

Moisture Content = 20.4%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

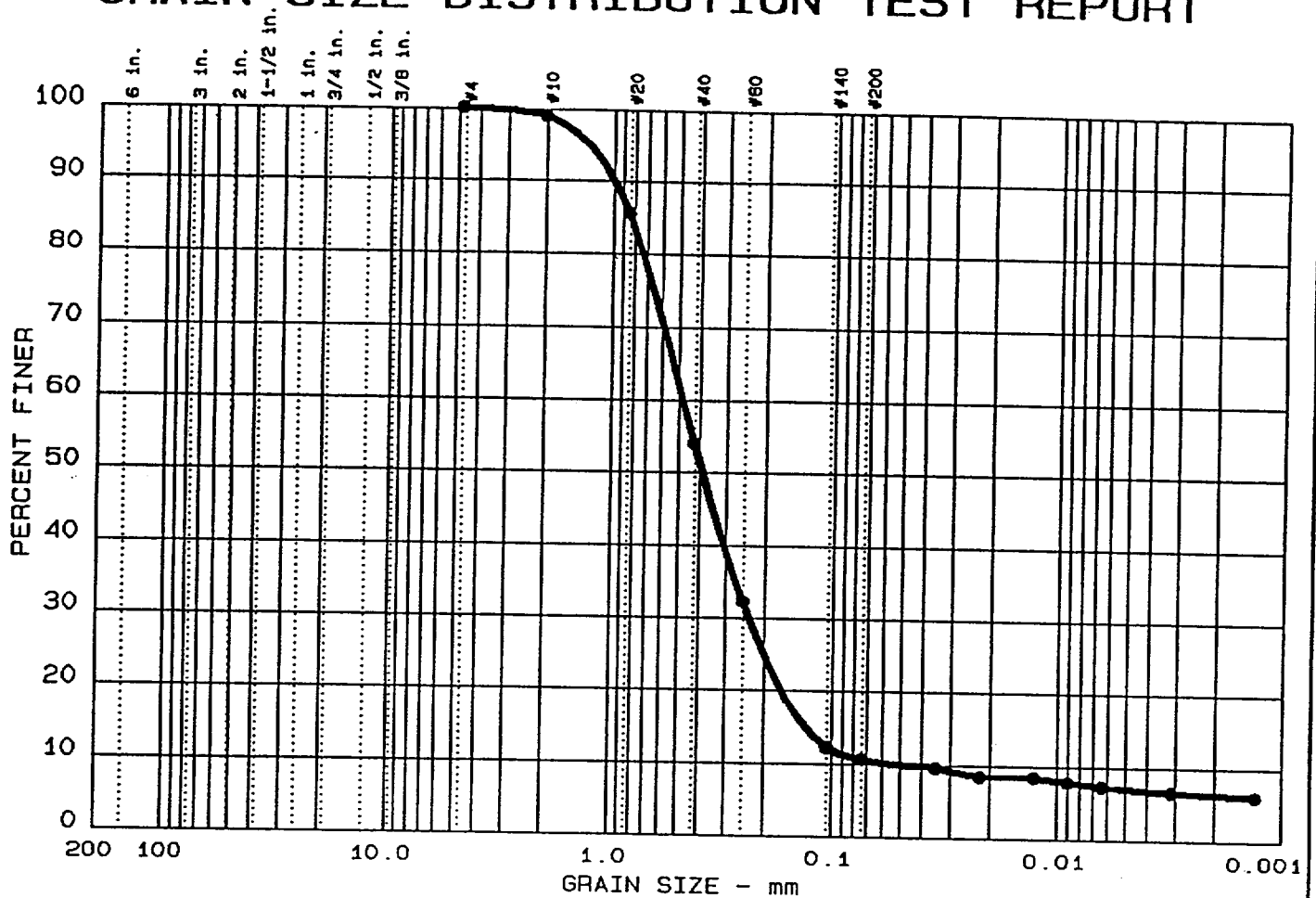
Grain size distribution curve for a soil sample. The graph plots Percent Finer (0 to 100) against Grain Size in mm (logarithmic scale from 200 to 0.001). The curve shows a well-graded soil with a maximum grain size of approximately 4.75 mm (No. 4 sieve) and a minimum grain size of approximately 0.075 mm (No. 200 sieve).

Grain Size (mm)	Percent Finer (%)
4.75 (No. 4)	100
2.0 (No. 10)	95
0.85 (No. 20)	85
0.425 (No. 40)	62
0.25 (No. 60)	32
0.15 (No. 100)	15
0.075 (No. 200)	8
0.06 (No. 250)	7
0.045 (No. 325)	6
0.03 (No. 475)	5
0.02 (No. 75)	4
0.015 (No. 100)	3
0.01 (No. 150)	2
0.0075 (No. 200)	1
0.006 (No. 250)	1
0.0045 (No. 325)	0

[illegible]

Project No.: 50161-7-0108 Task 21 Project: F-Area Notheast Expansion ● Location: FB-20 SS-61 @ 96.0 Ft. Date: June 26, 1998	Remarks: Tested by: <i>SCJ/TM</i> Reviewed by: <i>HS</i> Moisture Content = 20.1% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 9	0.0	0.0	89.3	3.7	7.0

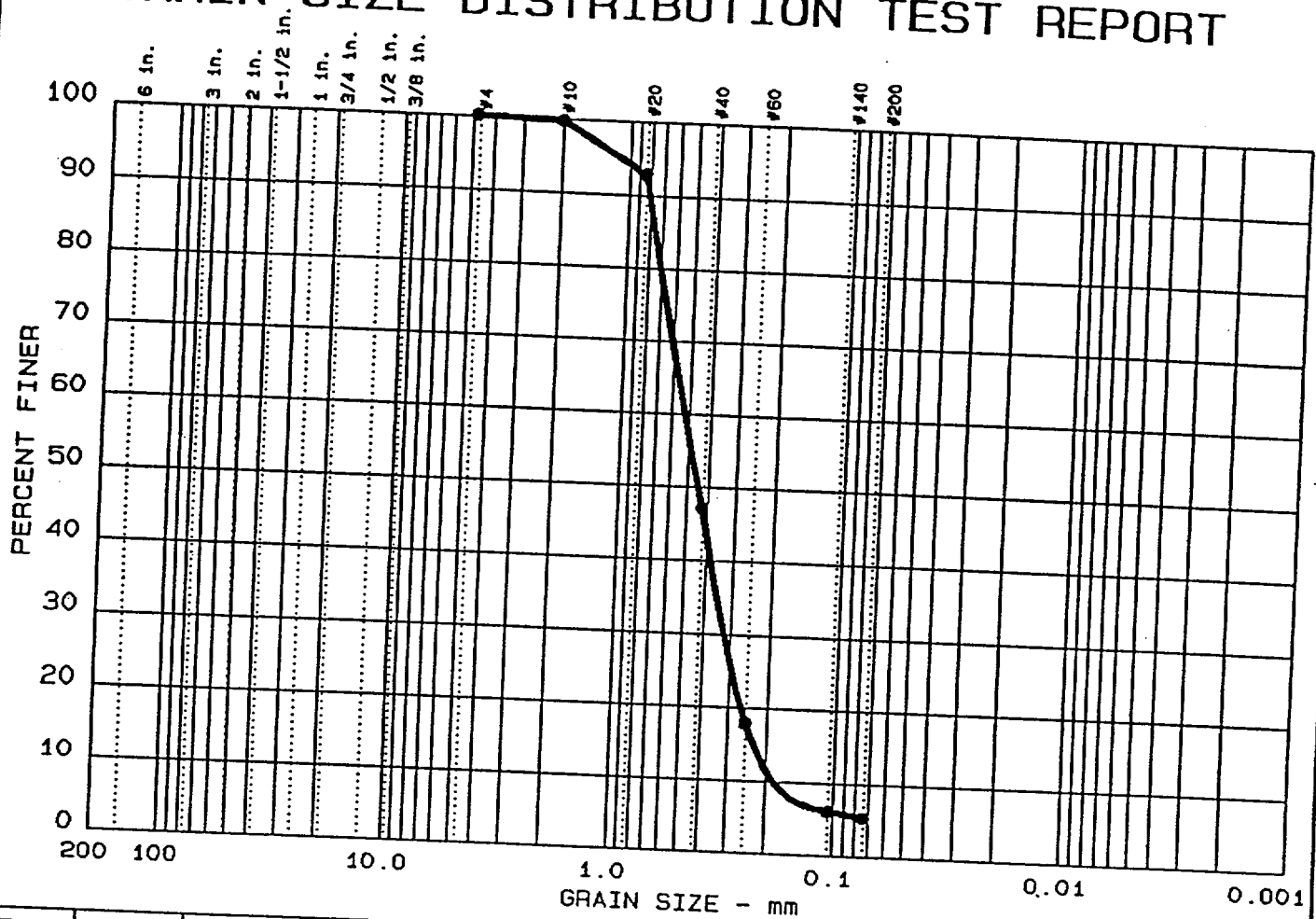
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● 31	8	0.83	0.47	0.39	0.235	0.1290	0.0463	2.51	10.2

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Well Graded Sand with Silt	SW-SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-20 SS-63 @ 99.1-100.6 Ft.
 Date: June 30, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SC Jmcs*
 Reviewed by: *HJ*
 Moisture Content = 20.9%
 ASTM D422, D4318 & D2216
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
17	0.0	0.0	94.7	5.3	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.75	0.52	0.44	0.322	0.2294	0.1843	1.08	2.8

MATERIAL DESCRIPTION

● Brown Poorly Graded Sand with Silt

USCS

SP-SM

AASHTO

A-1-b

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-20 SS-66 @ 103.6-105.1 Ft.

Date: June 23, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC

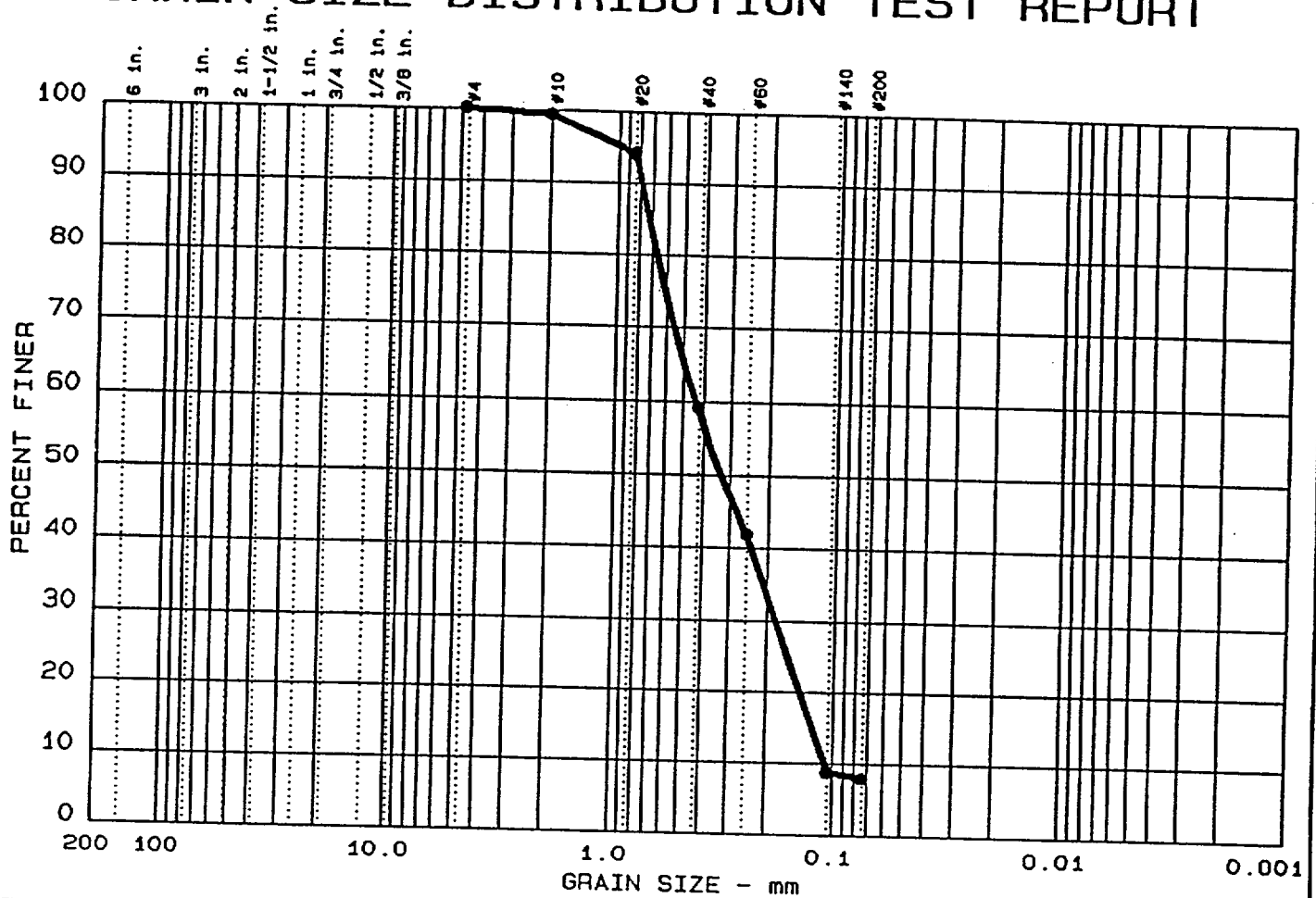
Reviewed by: HB

Moisture Content = 24.5%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 18	0.0	0.0	92.1	7.9	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.72	0.43	0.33	0.183	0.1236	0.1085	0.72	3.9

MATERIAL DESCRIPTION	USCS	AASHTO
• Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-20 SS-68 @ 106.6-108.1 Ft.

Date: June 23, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC*

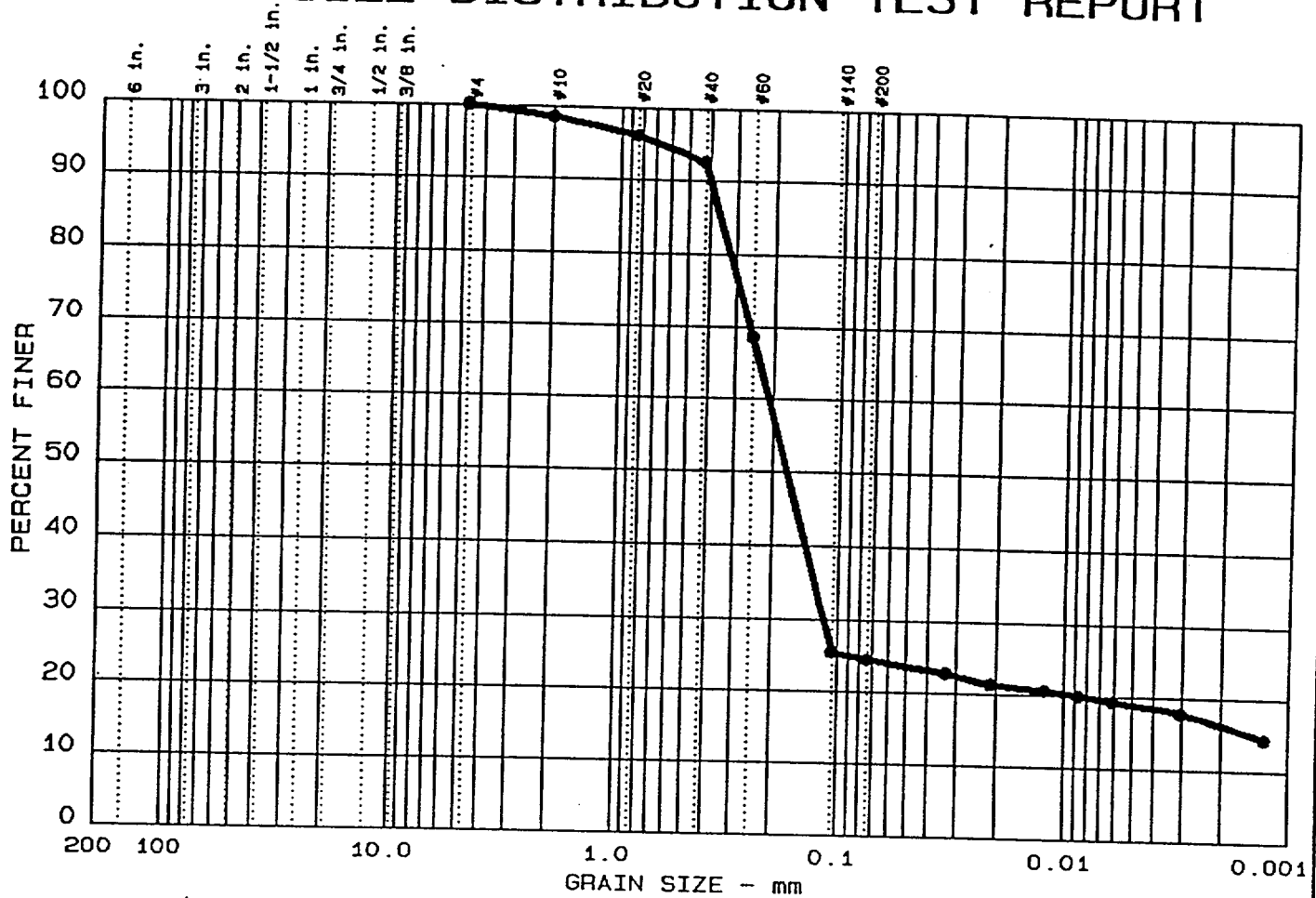
Reviewed by: *HS*

Moisture Content = 26.2%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
7	0.0	0.0	75.5	5.6	18.9

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
44	19	0.35	0.21	0.17	0.115	0.0014			

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Clayey Sand	SC	A-2-7 (0.6)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-20 SS-70 @ 109.6-112.7 Ft.

Date: June 30, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: CS SC & Jm

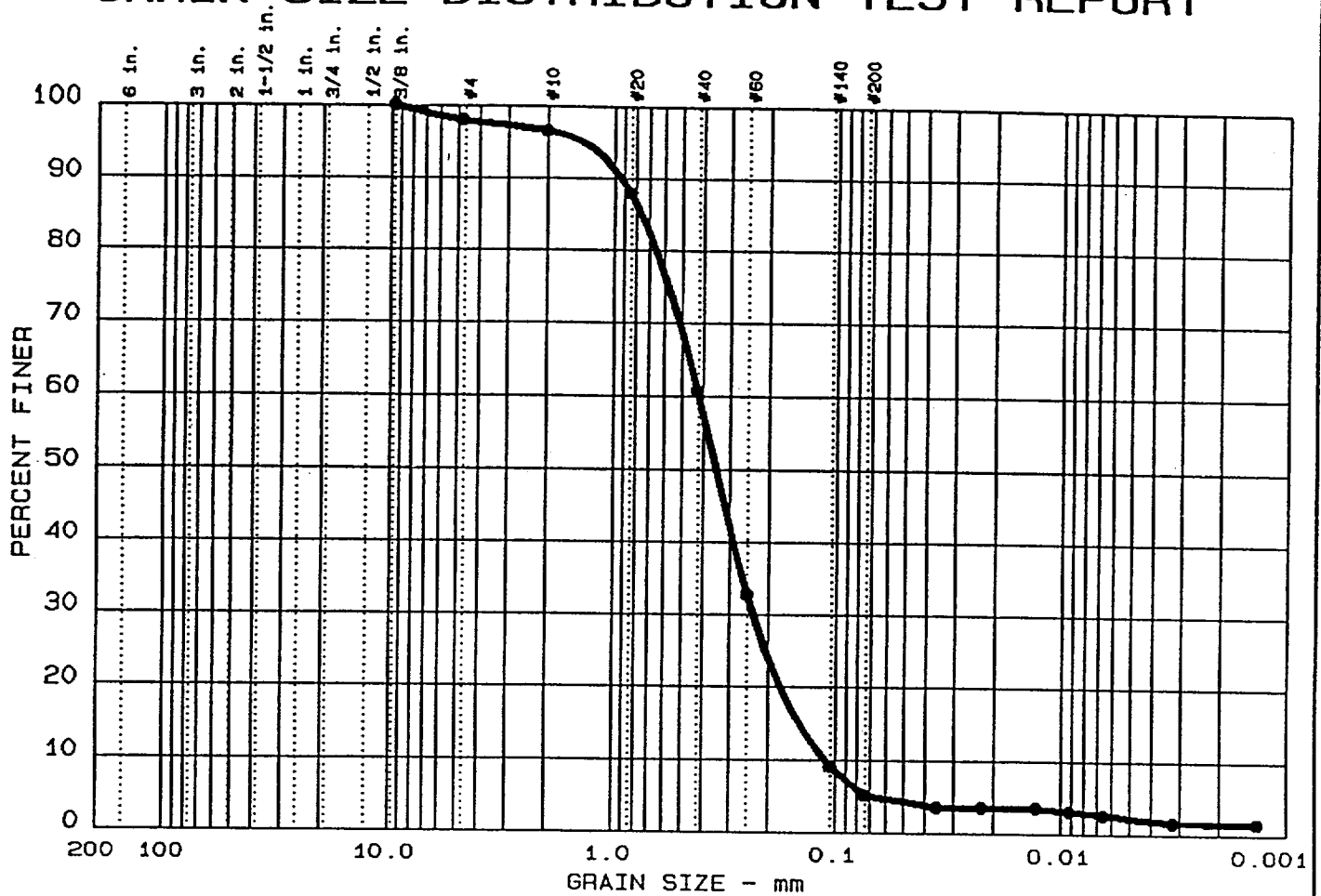
Reviewed by: lt

Moisture Content = 47.3%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



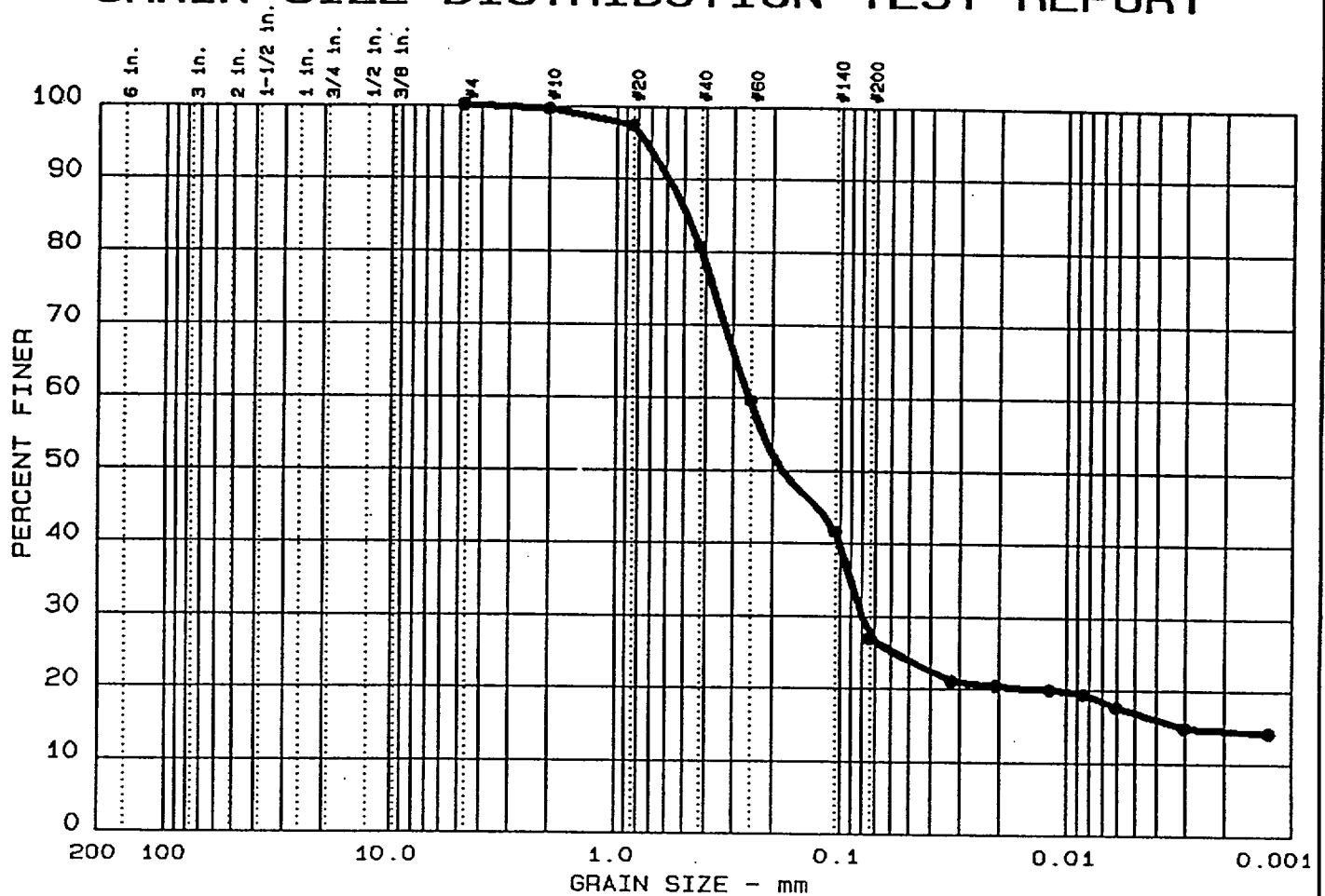
% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	2.0	92.9	2.9	2.2

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
NL	NP	0.75	0.41	0.35	0.235	0.1432	0.1099	1.21	3.8

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion Location: FB-22 SS-1 @ 7.0-8.5 Ft. Date: July 5, 1998	Remarks: Tested by: JTM+SC Reviewed by: H Moisture Content = 16.9% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



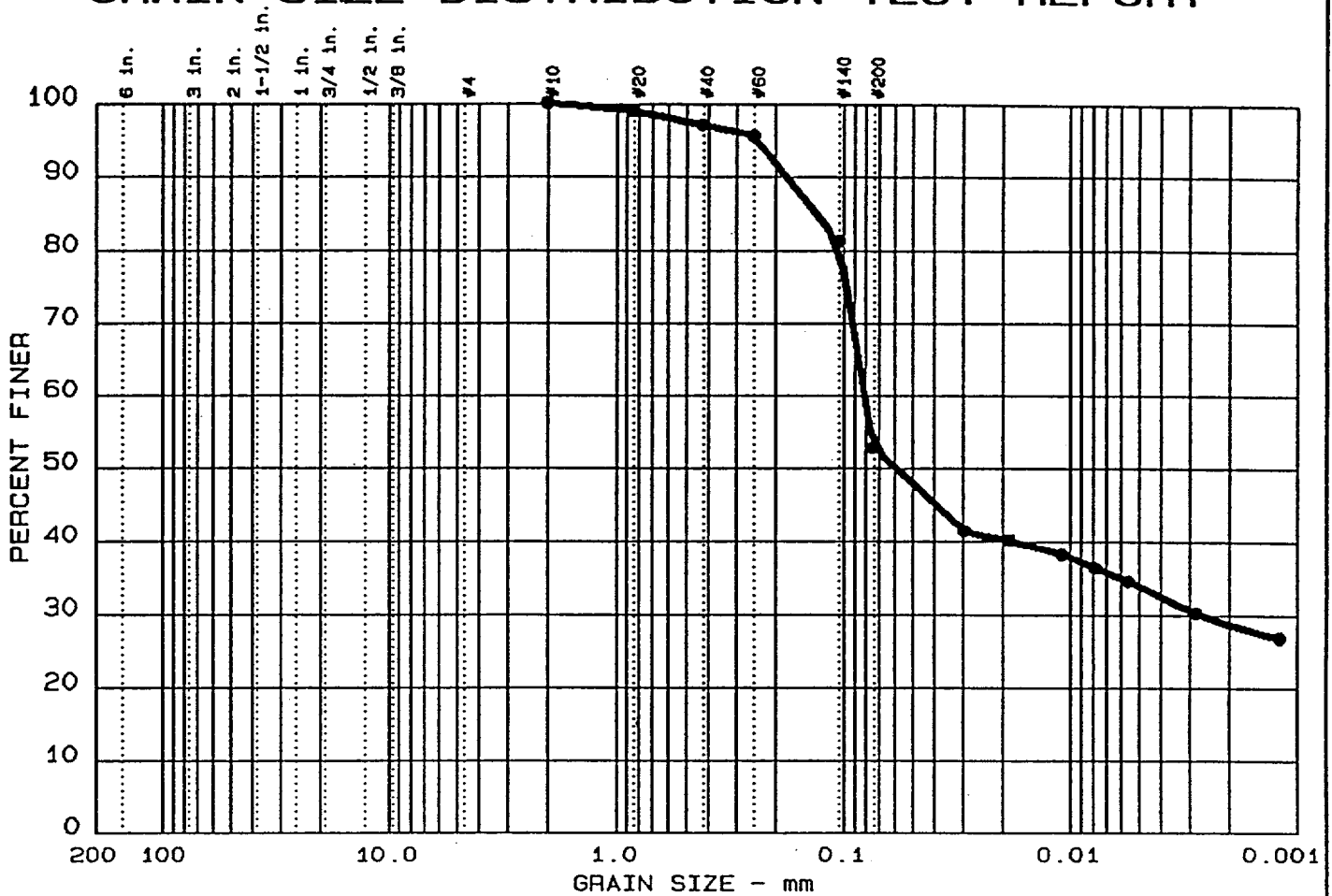
% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	73.2	9.9	16.9

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
29	10	0.48	0.25	0.18	0.080	0.0031			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Red Brown Clayey Sand	SC	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-22 SS-3 @ 10.0-11.5 Ft. Date: July 5, 1998	Remarks: Tested by: JTM/SC Reviewed by: HB Moisture content = 17.4% ASTM D422, D4318 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	47.2	18.9	33.9

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
45	22	0.13	0.08	0.06	0.003				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Red Brown Sandy Lean Clay	CL	A-7-6(B.6)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-4 @ 11.5-13.0 Ft.

Date: July 5, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *Jm LSC*

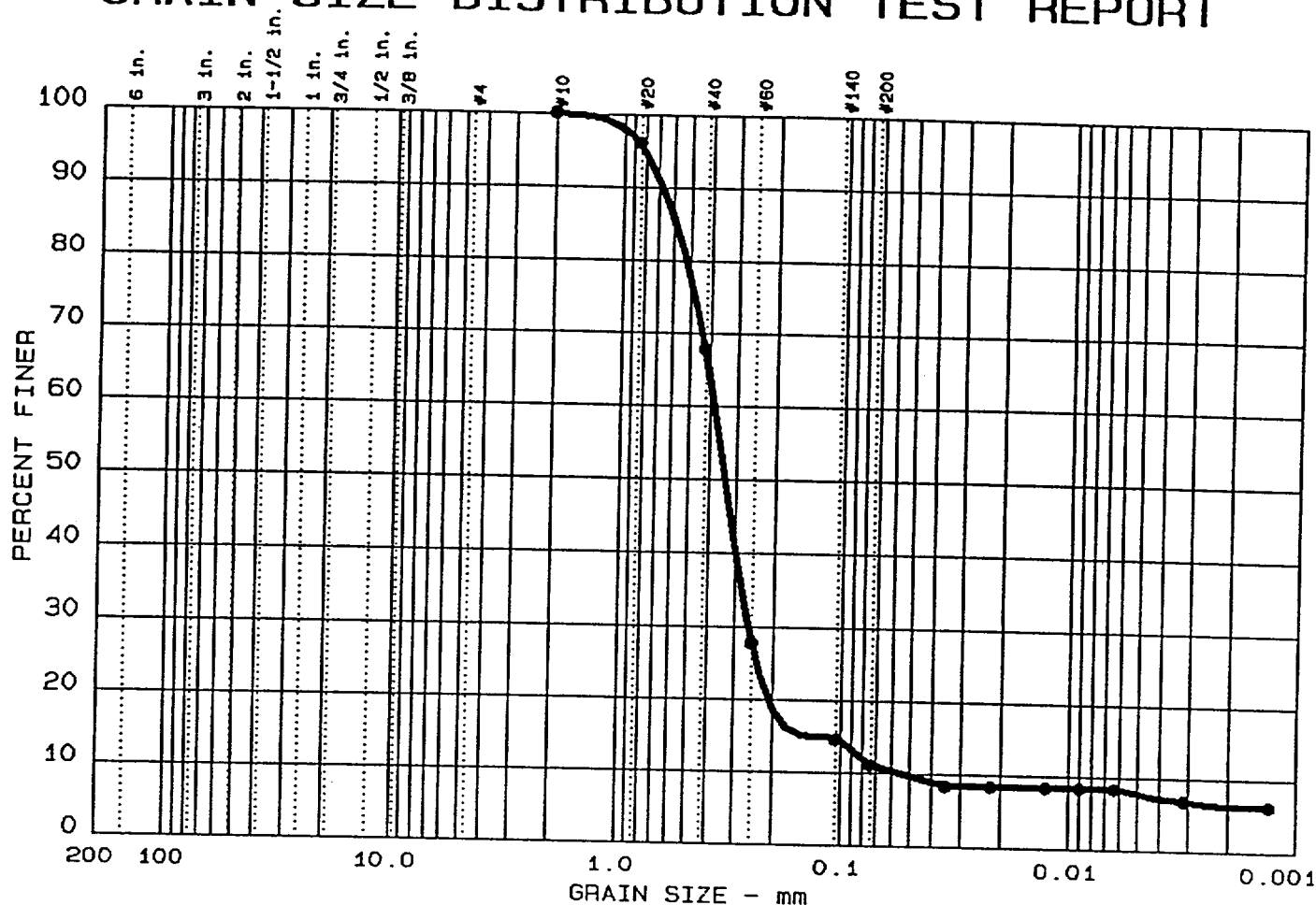
Reviewed by: *AS*

Moisture Content = 20.9%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	88.8	3.4	7.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
NL	NP	0.58	0.38	0.34	0.259	0.1242	0.0524	3.39	7.2

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Poorly Graded Sand with Silt	SP-SM	A-2-4 (0.4)

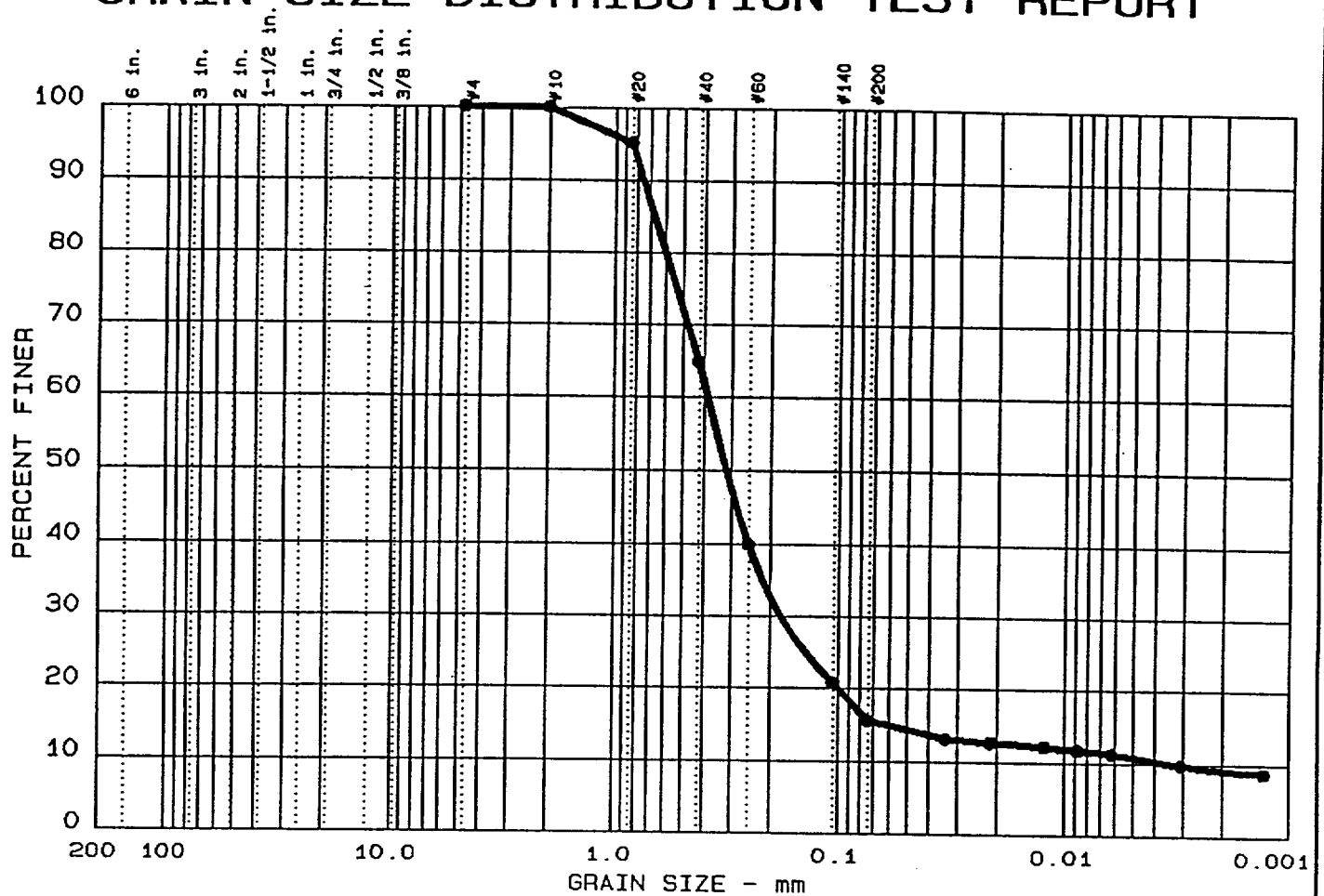
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-6 @ 14.5-16.0 Ft.
 Date: July 5, 1998

Remarks:
 Tested by: Jtm + sc
 Reviewed by: H
 Moisture Content = 9.7%
 ASTM D422, D4318 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	84.4	4.7	10.9

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
31	10	0.66	0.38	0.31	0.181	0.0584	0.0031	27.51	123.2

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan. Clayey Sand	SC	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-7 @ 16.0-17.5 Ft.
 Date: July 5, 1998

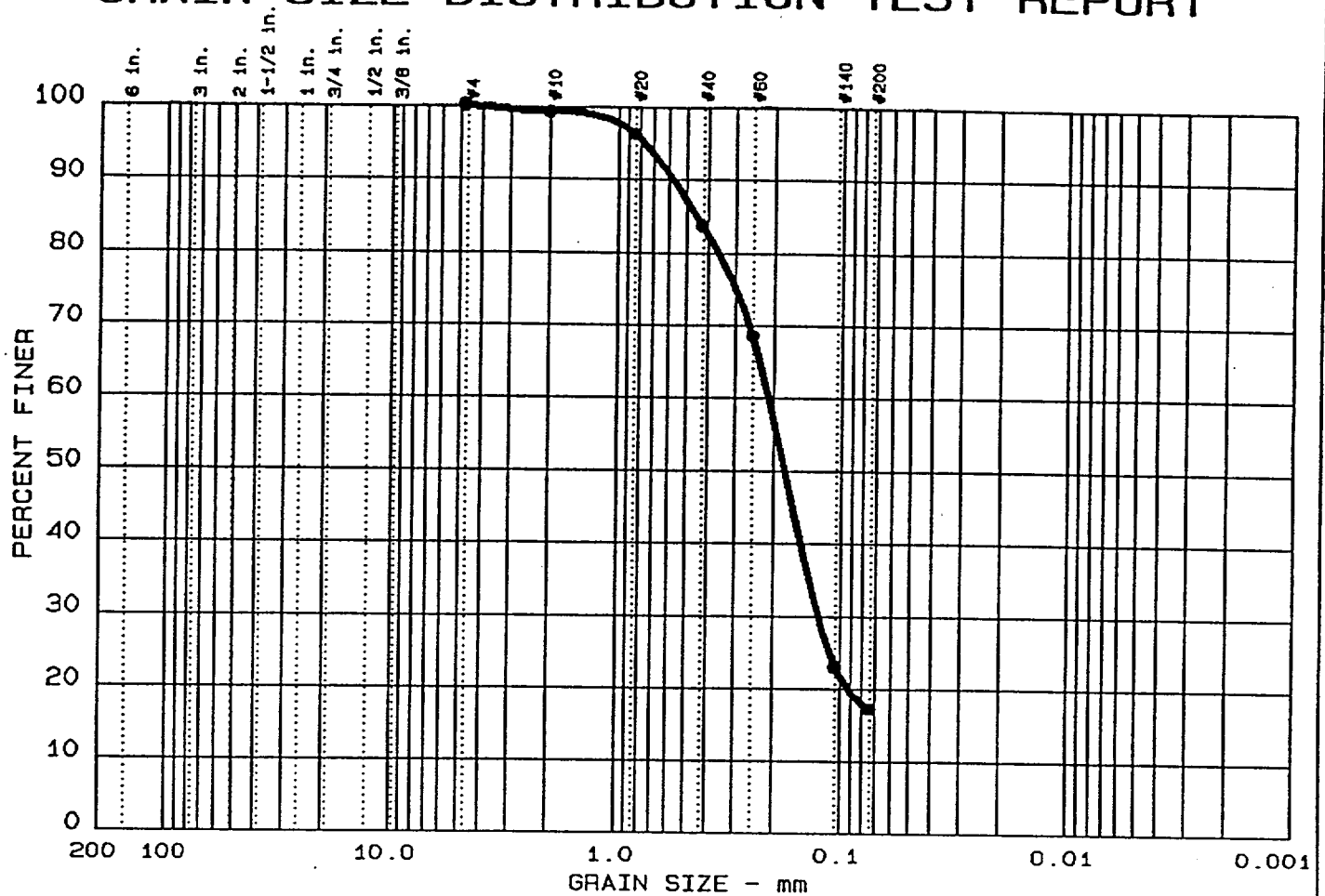
Remarks:

Tested by: *STmtSC*
 Reviewed by: *HB*
 Moisture Content = 11.8%
 ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION TEST REPORT



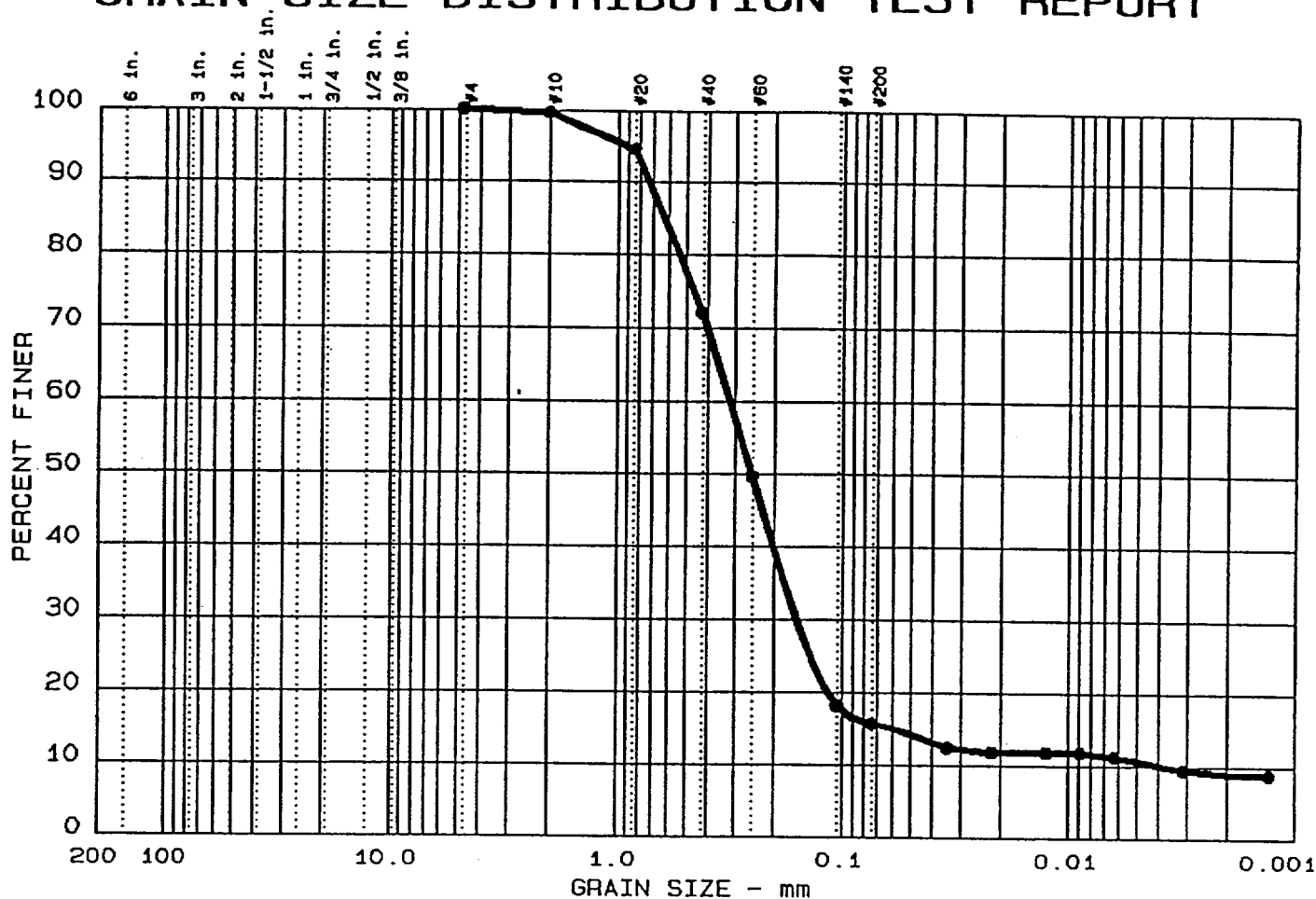
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 6	0.0	0.0	82.7	17.3	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
●		0.44	0.21	0.18	0.125				

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan-Brown Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21 Project: F-Area Notheast Expansion ● Location: FB-22 SS-10 @ 20.5-22.0 Ft. Date: June 30, 1998	Remarks: Tested by: SC + CS Reviewed by: H Moisture Content = 16.5% ASTM D422 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	84.2	5.1	10.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
30	8	0.62	0.32	0.25	0.159	0.0583	0.0038	20.99	82.8

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Clayey Sand	SC	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-13 @ 25.0-26.5 Ft.

Date: July 5, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC/STm*

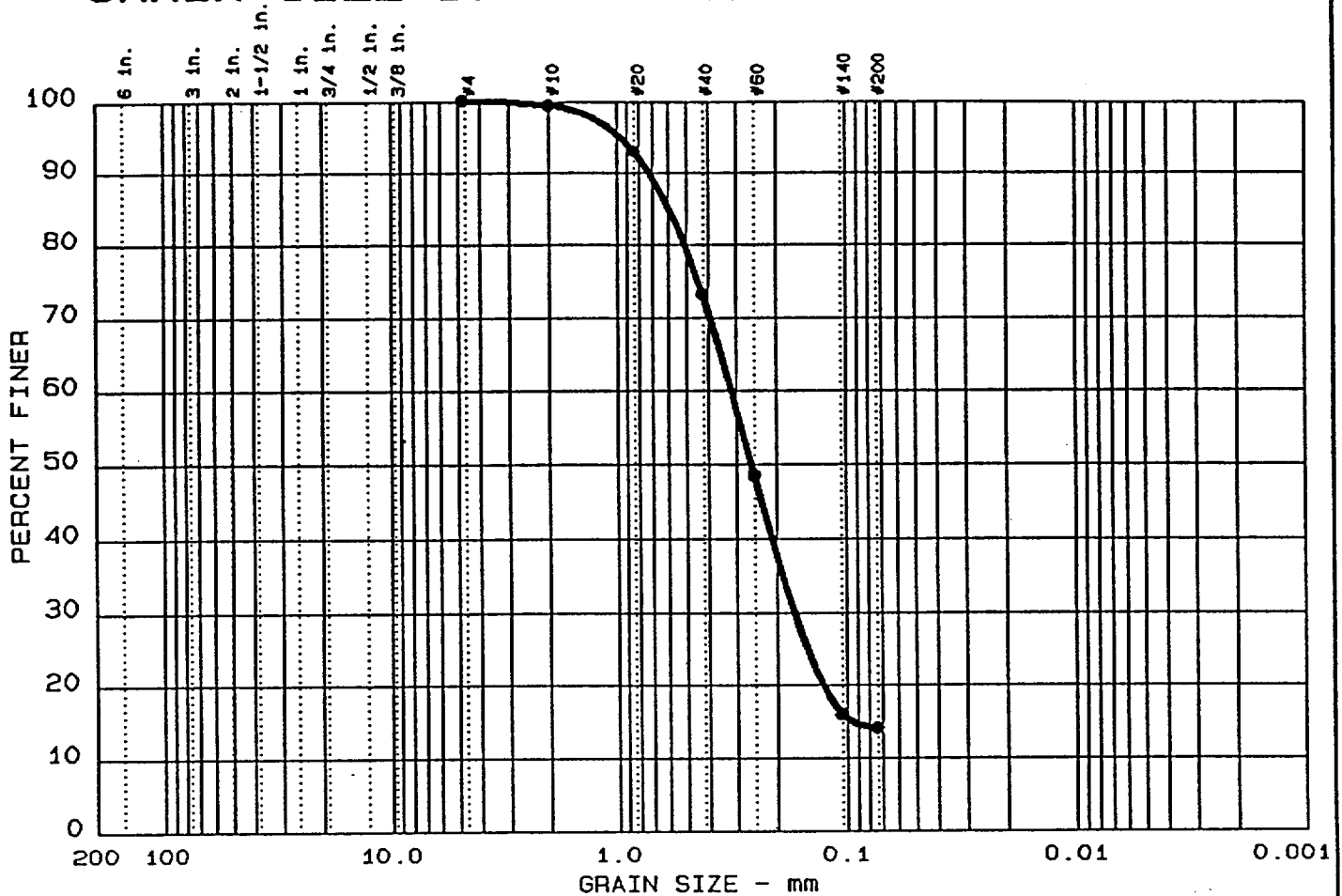
Reviewed by: *H*

Moisture Content = 18.6%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



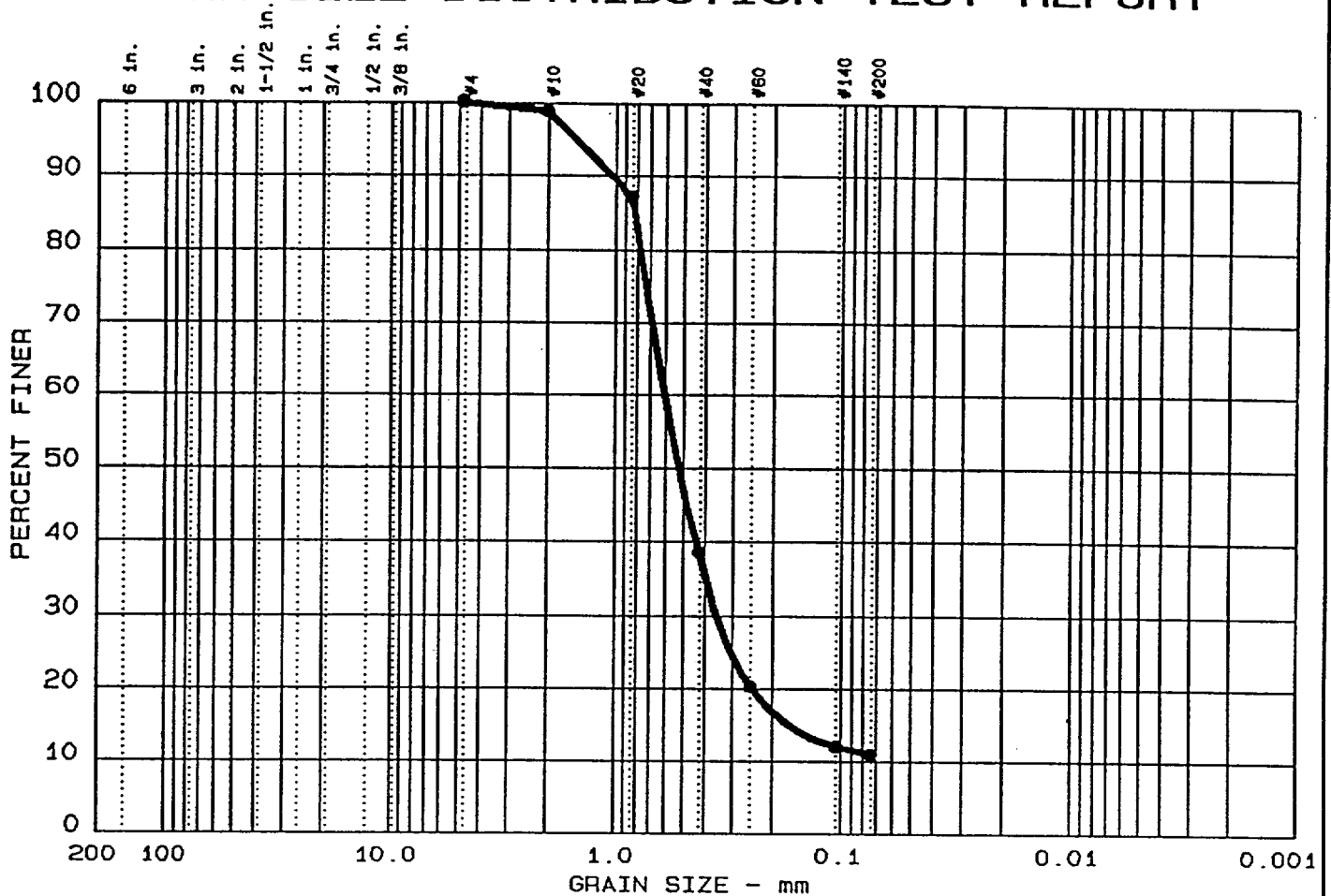
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 19	0.0	0.0	85.9	14.1	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.59	0.31	0.26	0.168	0.0934			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.1)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-22 SS-16 @ 29.5-31.0 Ft. Date: June 23, 1998	Remarks: Tested by: SC Reviewed by: HS Moisture Content = 16.8% ASTM D422 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
9	0.0	0.0	89.0	11.0	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.82	0.60	0.52	0.353	0.1688			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan. Brown. Silty Sand. . . .	SP-SM	A-1-b

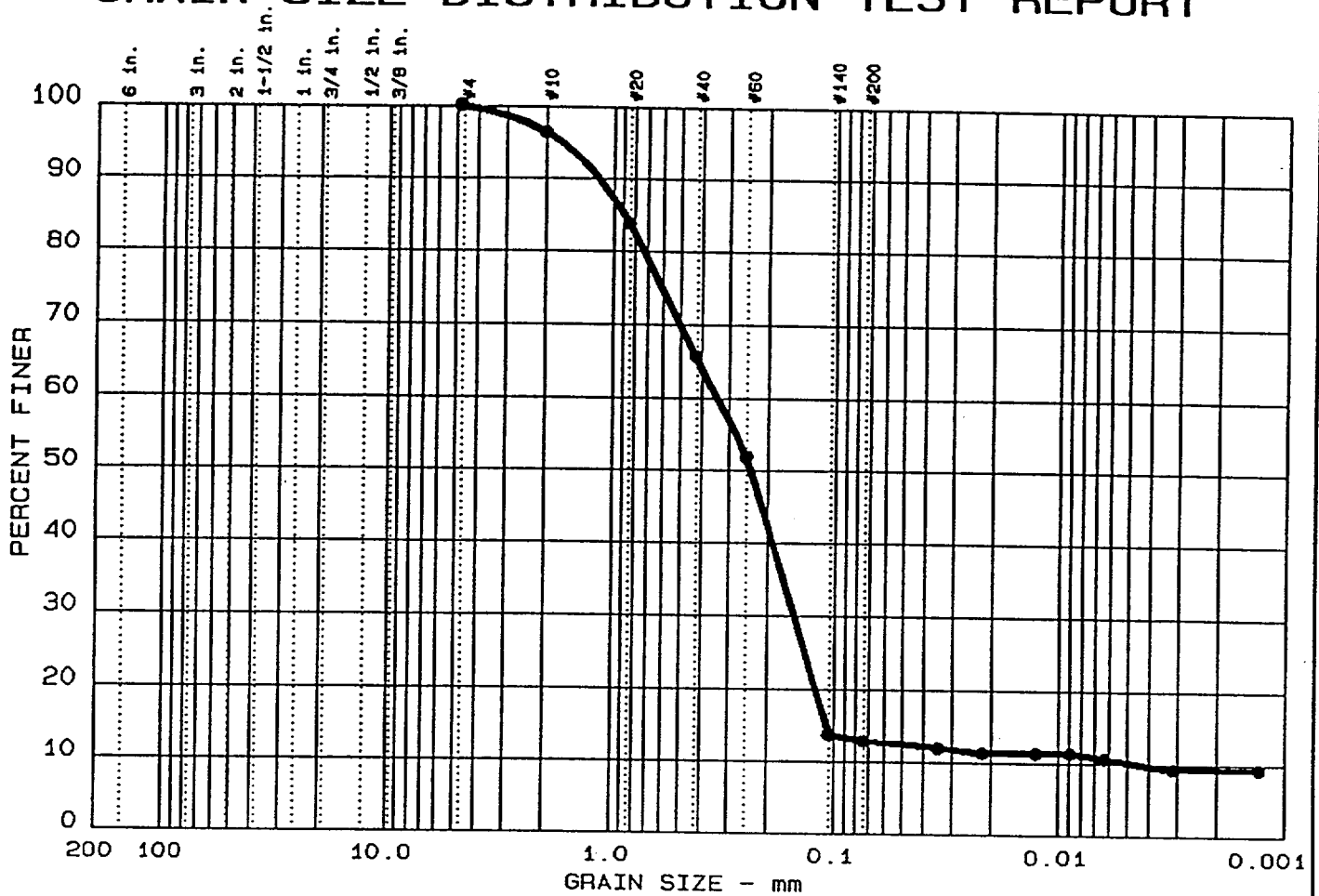
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-19 @ 34-35.5 Ft.
 Date: June 25, 1998

Remarks:
 Tested by: SC & CS
 Reviewed by: H
 Moisture Content = 16.3%
 ASTM D422 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	87.1	2.7	10.2

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
30	5	0.88	0.34	0.24	0.152	0.1080	0.0044	15.47	77.0

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

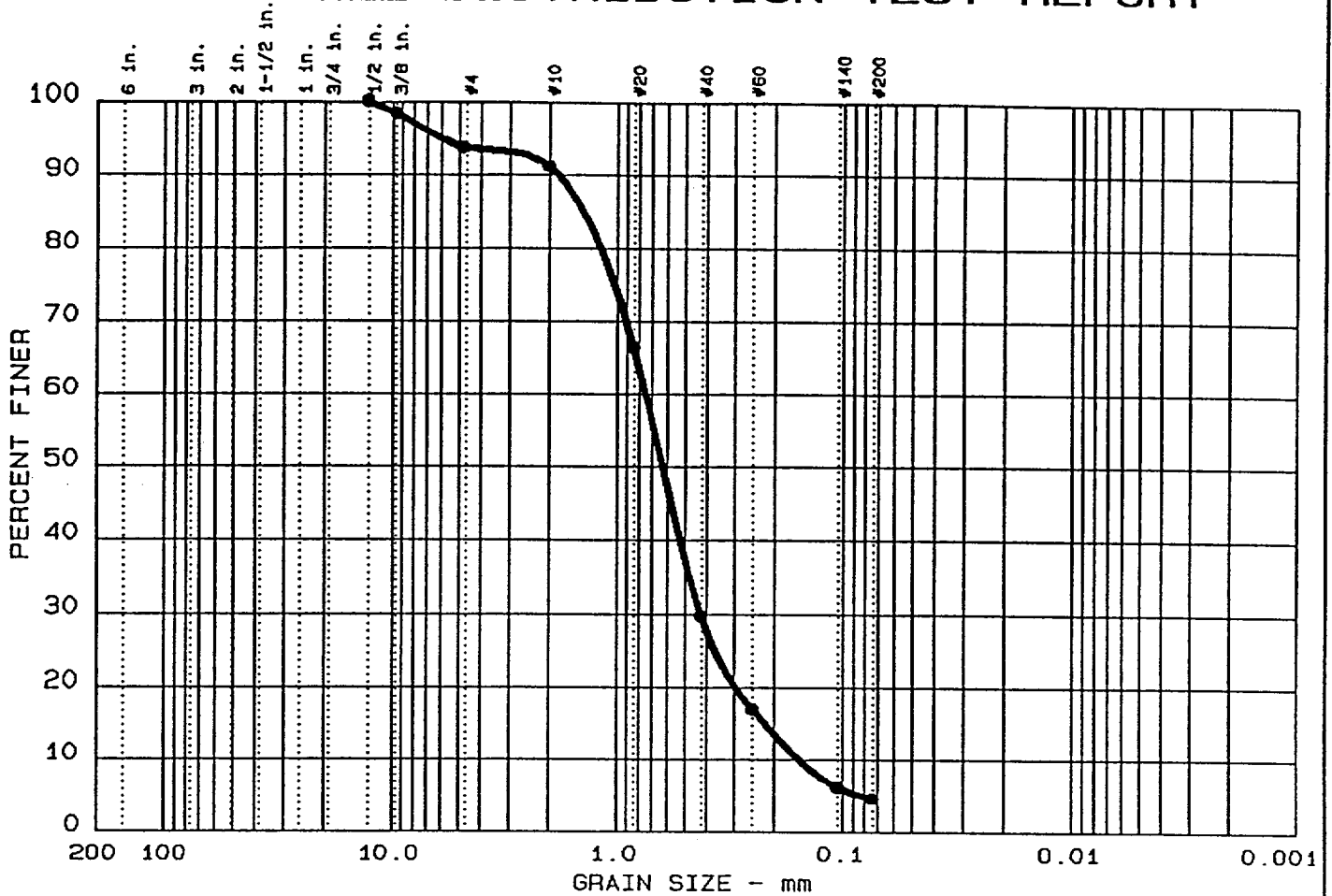
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-22 @ 38.5-40.0 Ft.
 Date: July 5, 1998

Remarks:
 Tested by: *JMJS*
 Reviewed by: *HD*
 Moisture Content = 19.0%
 ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 15	0.0	6.2	89.2	4.6	

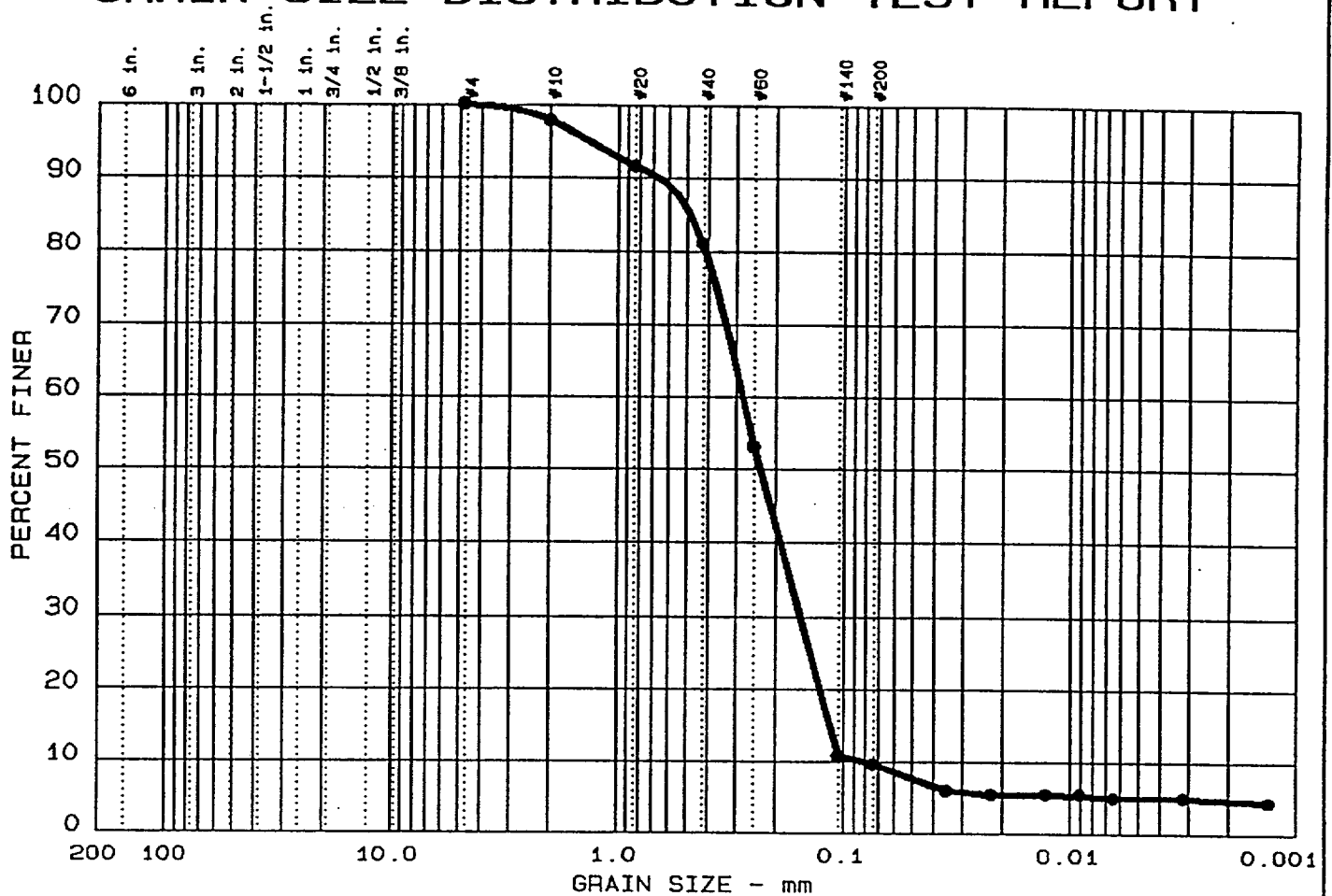
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		1.39	0.74	0.62	0.422	0.2188	0.1549	1.55	4.8

MATERIAL DESCRIPTION	USCS	AASHTO
• Brown Poorly Graded Sand	SP	A-1-b

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-27 @ 46.0-47.5 Ft.
 Date: June 25, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *CS & SS*
 Reviewed by: *W*
 Moisture Content = 15.2%
 ASTM D422 & D2216
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
1	0.0	0.0	90.3	4.6	5.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
NL	NP	0.47	0.28	0.23	0.155	0.1139	0.0816	1.06	3.4

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Poorly Graded Sand with Silt	SP-SM	A-3

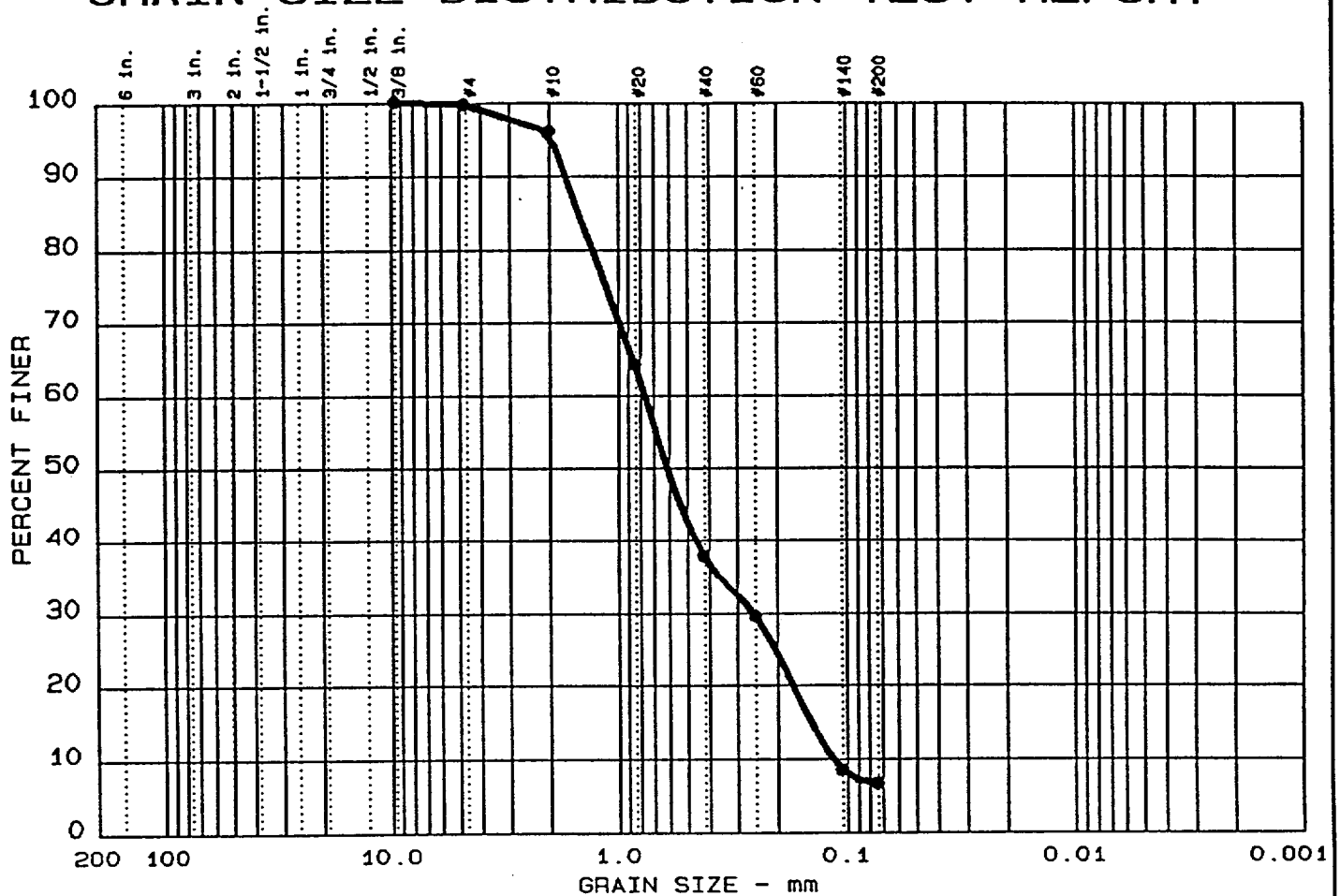
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-22 SS-32 @ 53.5-55.0 Ft.
 Date: July 9, 1998

Remarks:
 Tested by: JTM/JSC
 Reviewed by: HB
 Moisture Content = 22.7%
 ASTM D422, D4318 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
 LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 20	0.0	0.3	92.9	6.8	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		1.48	0.76	0.61	0.256	0.1422	0.1143	0.75	6.7

MATERIAL DESCRIPTION	USCS	AASHTO
• Brown Poorly Graded Sand with Silt	SP-SM	A-1-b

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-35 @ 58.0-59.5 Ft.

Date: June 23, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC*

Reviewed by: *th*

Moisture Content = 12.5%

ASTM D422 & D2216

Figure No.

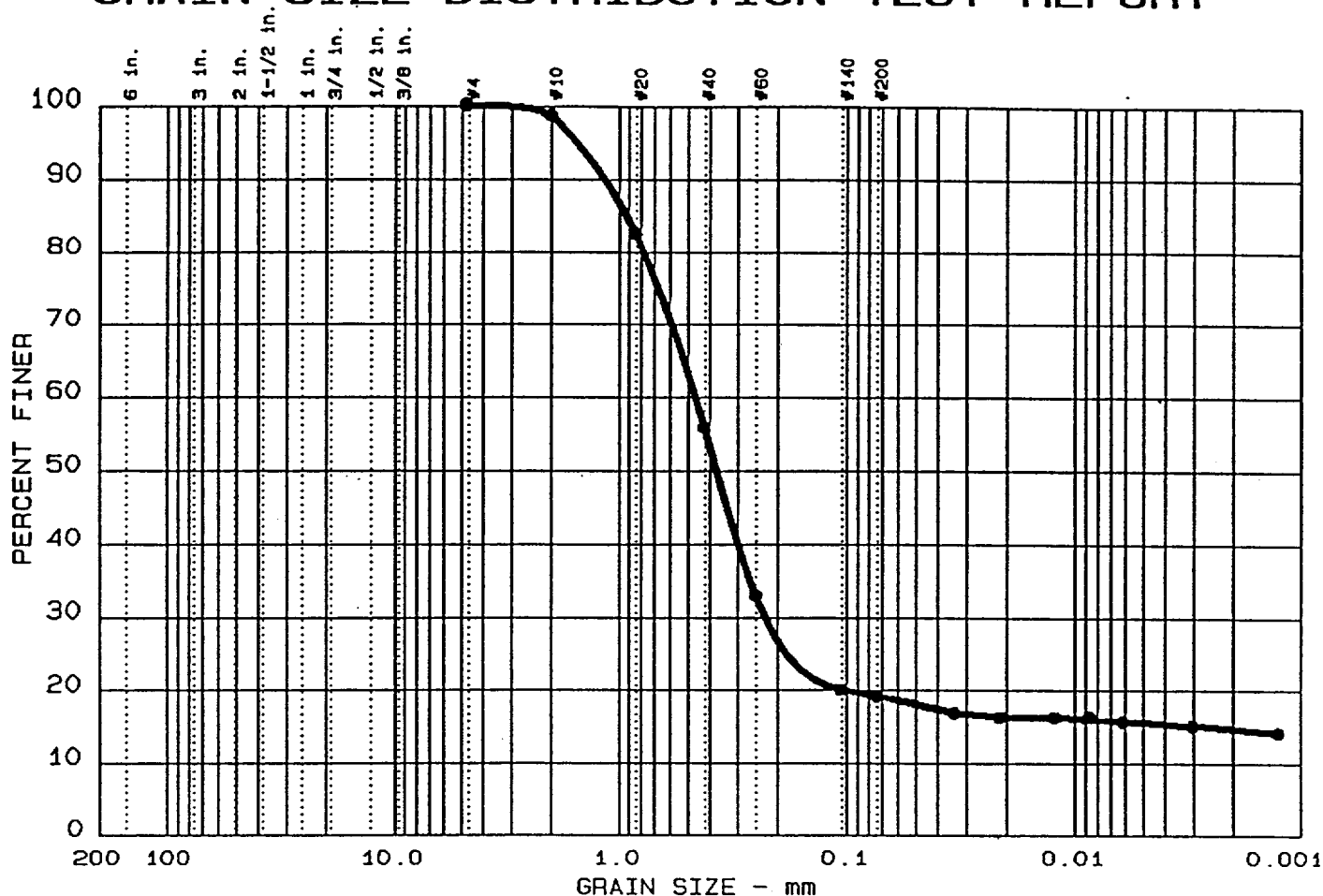
Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve is plotted on a semi-logarithmic scale. The Y-axis represents Percent Finer (0 to 100). The X-axis represents Grain Size in mm (logarithmic scale from 200 to 0.001). The curve shows a well-graded soil with a peak at 100% finer for grain sizes down to approximately 0.075 mm, followed by a sharp drop to about 22% finer at 0.075 mm, and then a gradual decrease to about 4% finer at 0.001 mm.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
50	100
25	100
12.5	100
6.3	100
3.15	100
1.5	100
0.75	100
0.425	100
0.25	100
0.15	100
0.075	22
0.0425	10
0.025	8
0.015	6
0.0075	5
0.00425	4
0.0025	4
0.0015	4
0.00075	4

[illegible]

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion ● Location: FB-22 SS-38 @ 62.9-64.4 Ft.	Remarks: Tested by: Jtm & SC Reviewed by: HJ Moisture Content = 19.5% ASTM D422 & D4318
Date: July 9, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	
Figure No.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
6	0.0	0.0	80.8	3.6	15.6

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
44	18	0.92	0.46	0.37	0.228	0.0024			

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Brown Clayey Sand	SC	A-2-7 (0.3)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-22 SS-40 @ 65.9-67.4 Ft.

Date: July 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: JTM+SC

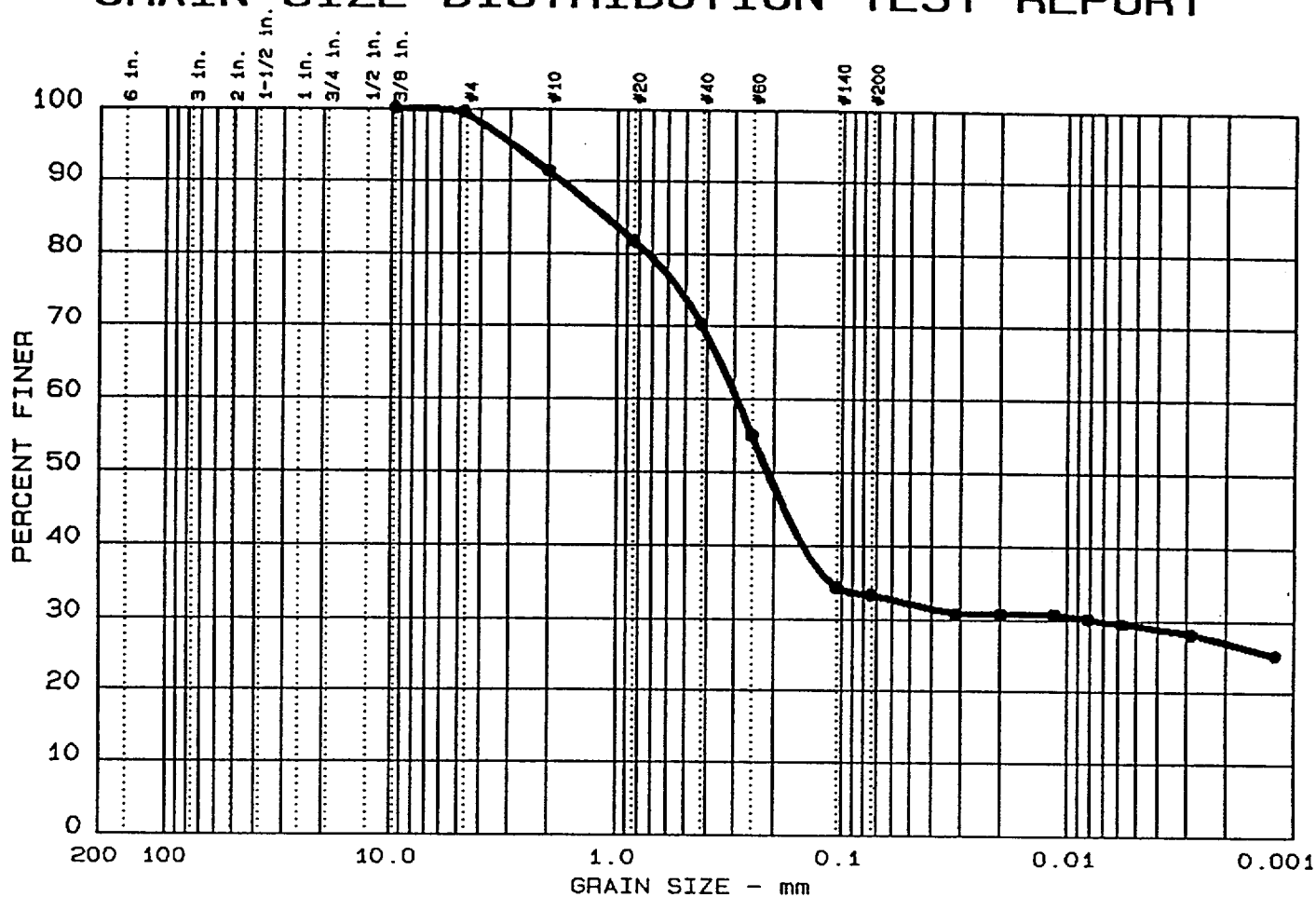
Reviewed by: HB

Moisture Content = 28.4%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 14	0.0	0.5	66.2	4.1	29.2

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 50	22	1.10	0.29	0.21	0.007				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan. Brown Clayey Sand	SC	A-2-7 (2.2)

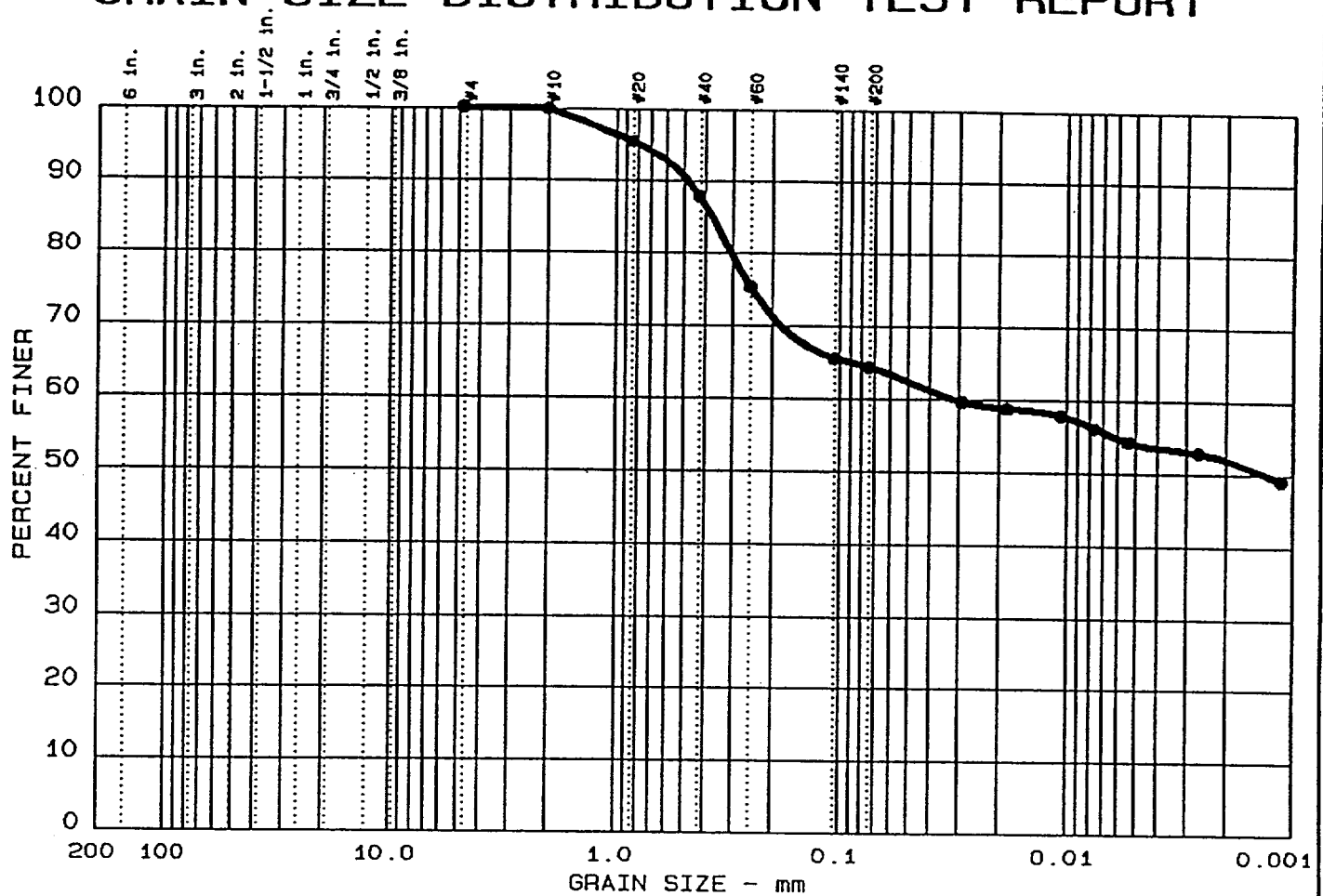
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-42 @ 68.9-70.4 Ft.
 Date: July 9, 1998

Remarks:
 Tested by: SC *SC*
 Reviewed by: *HD*
 Moisture Content = 34.0%
 ASTM D422 & D4318

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 19	0.0	0.0	35.6	10.4	54.0

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● 78	38	0.37		0.00					

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Sandy Elastic Silt	MH	A-7-5 (25.0)

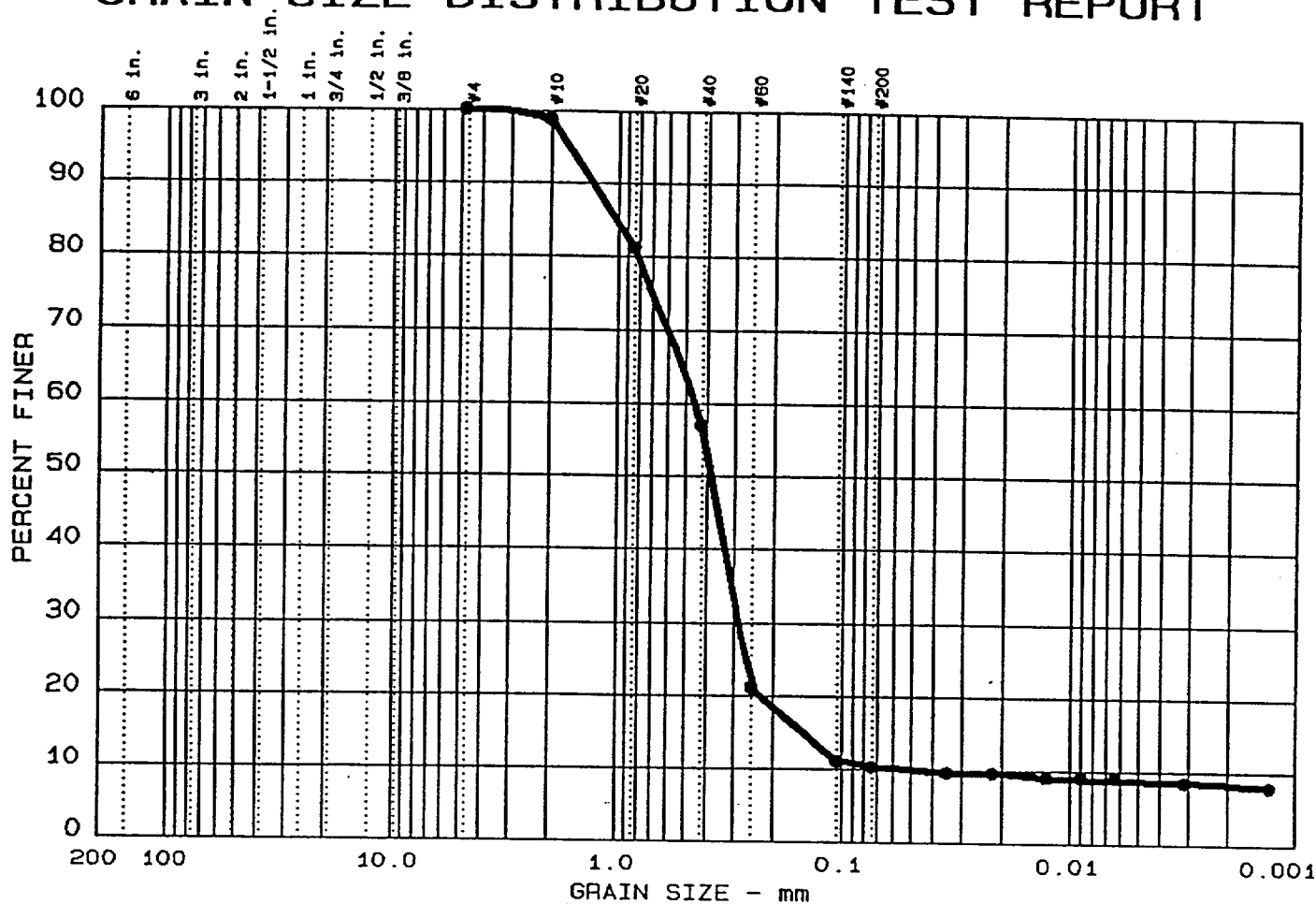
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-22 SS-43 @ 70.4-71.9 Ft.
 Date: July 9, 1998

Remarks:
 Tested by: JTM + SC
 Reviewed by: HD
 Moisture Content = 55.1%
 ASTM D422 & D4318

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



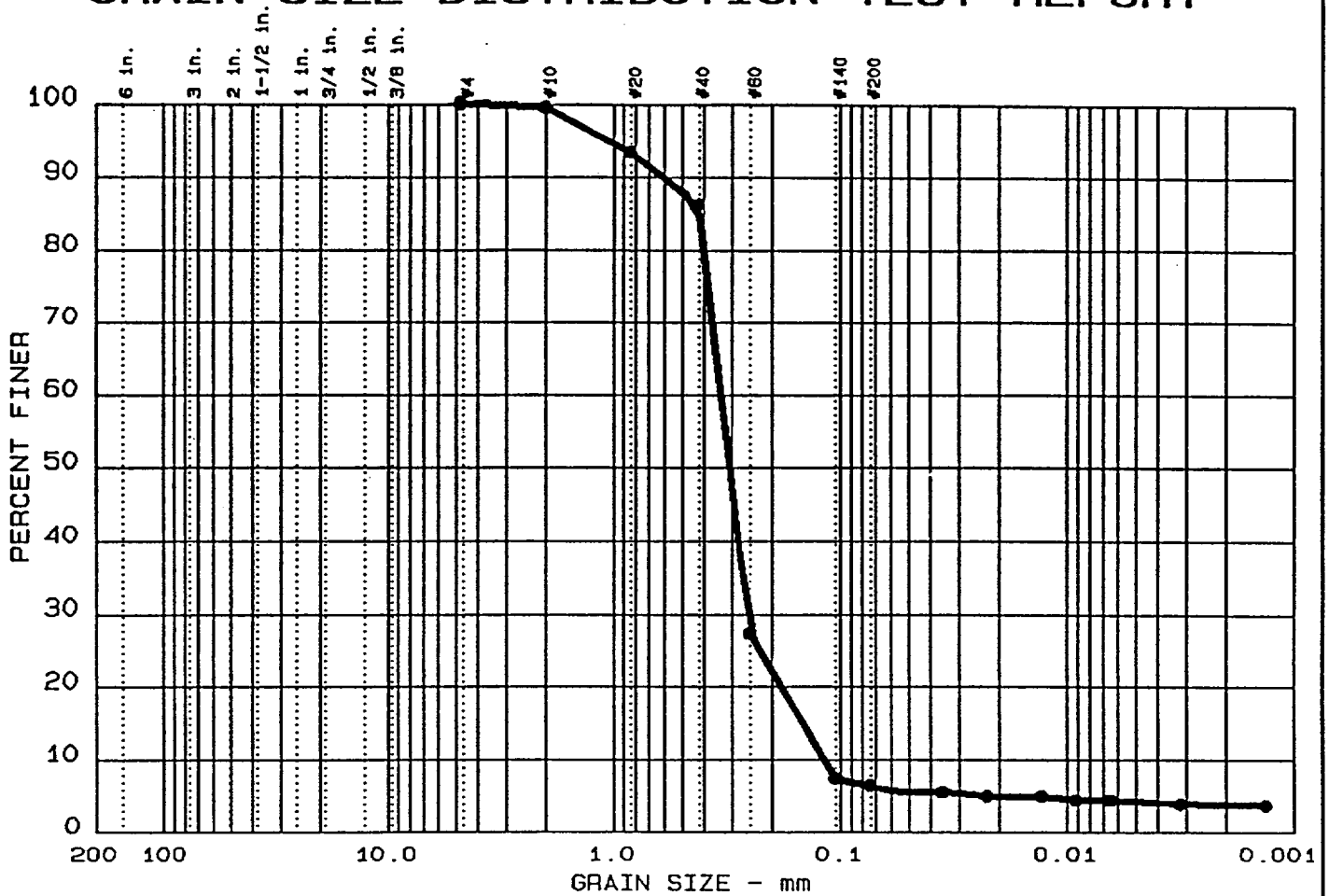
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 12	0.0	0.0	89.6	1.7	8.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 47	24	1.01	0.45	0.38	0.284	0.1457	0.0466	3.86	9.6

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Clay	SP-SC	A-2-7 (0.0)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-22 SS-44 @ 71.9-73.4 Ft. Date: July 9, 1998	Remarks: Tested by: <i>JTM+SC</i> Reviewed by: <i>W</i> Moisture Content = 22.3% ASTM D422 & D4318 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 5	0.0	0.0	93.5	2.2	4.3

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● NL	NP	0.41	0.33	0.31	0.256	0.1455	0.1169	1.68	2.8

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-22 SS-45 @ 73.4-74.9 Ft.

Date: July 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *JTM & SC*

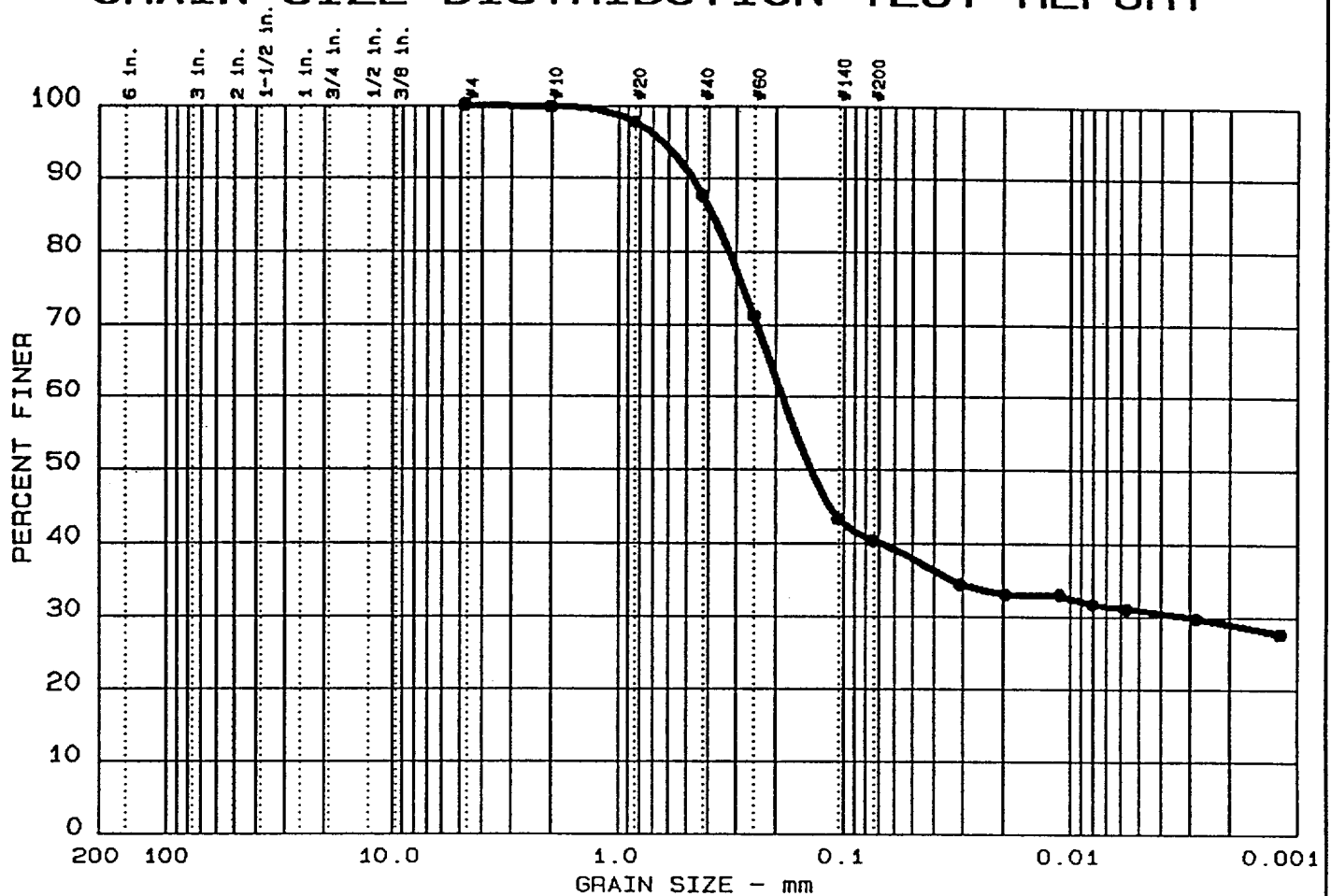
Reviewed by: *H*

Moisture Content = 21.5%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



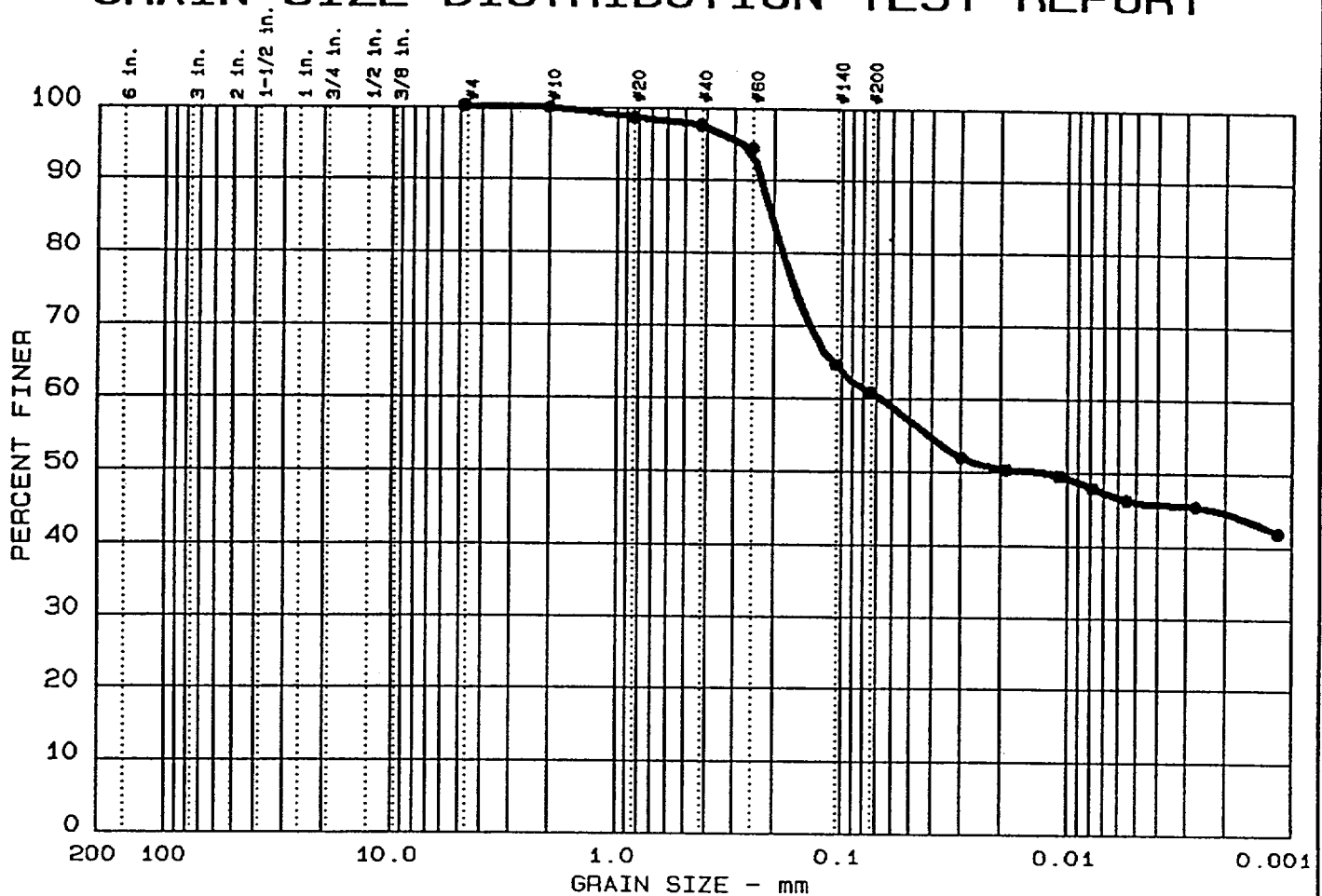
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 17	0.0	0.0	59.7	9.4	30.9

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 37	14	0.38	0.19	0.14	0.003				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown & Black Clayey Sand	SC	A-6 (1.9)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-22 SS-49 @ 79.4-80.9 Ft. Date: July 9, 1998	Remarks: Tested by: <i>JTM & SS</i> Reviewed by: <i>HO</i> Moisture Content = 38.4% ASTM D422 & D4318 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 15	0.0	0.0	39.2	14.8	46.0

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 74	40	0.20		0.01					

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Sandy Fat Clay	CH	A-7-5 (23.4)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-50 @ 80.9-82.4 Ft.

Date: July 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC/STW*

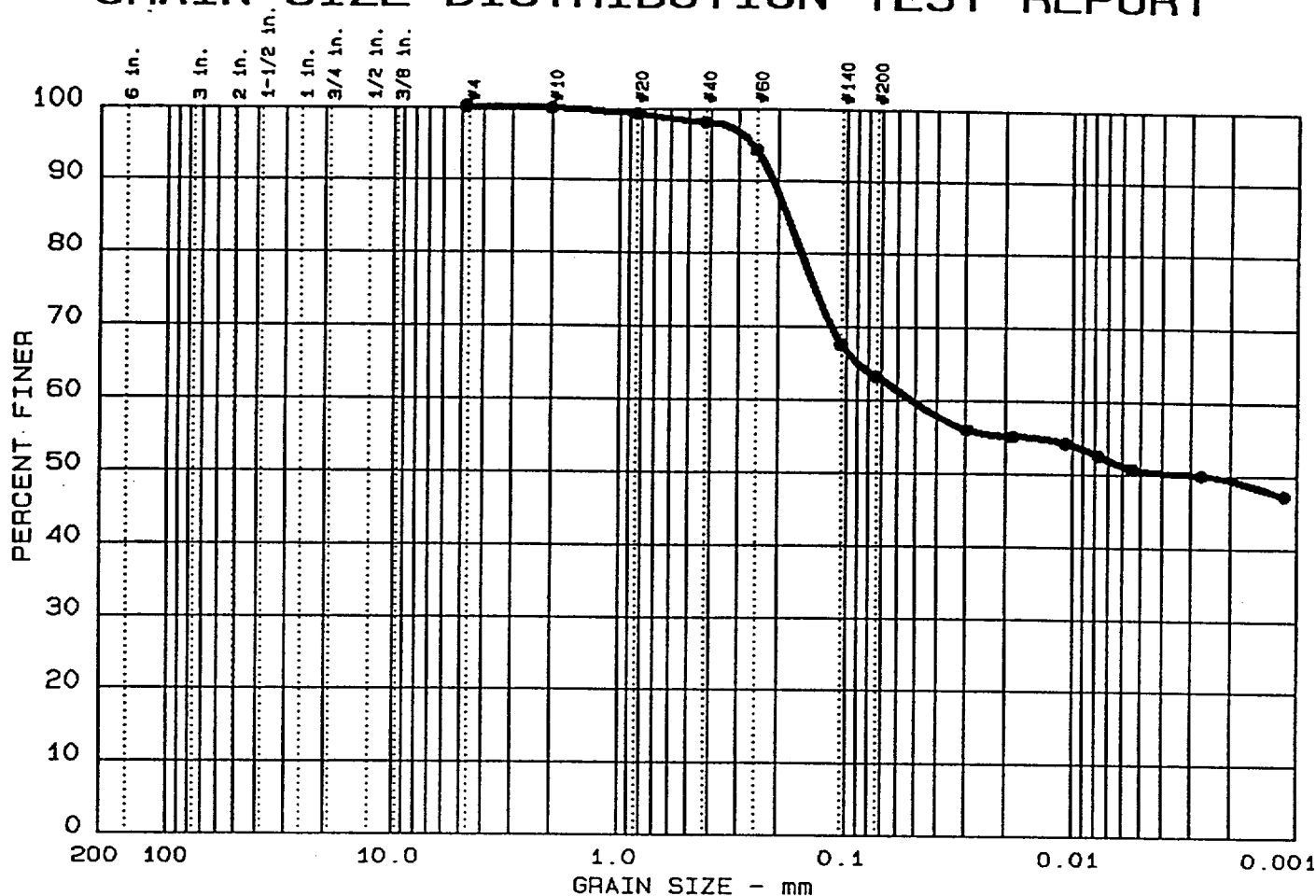
Reviewed by: *KS*

Moisture Content = 51.1%

ASTM D422 & D4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



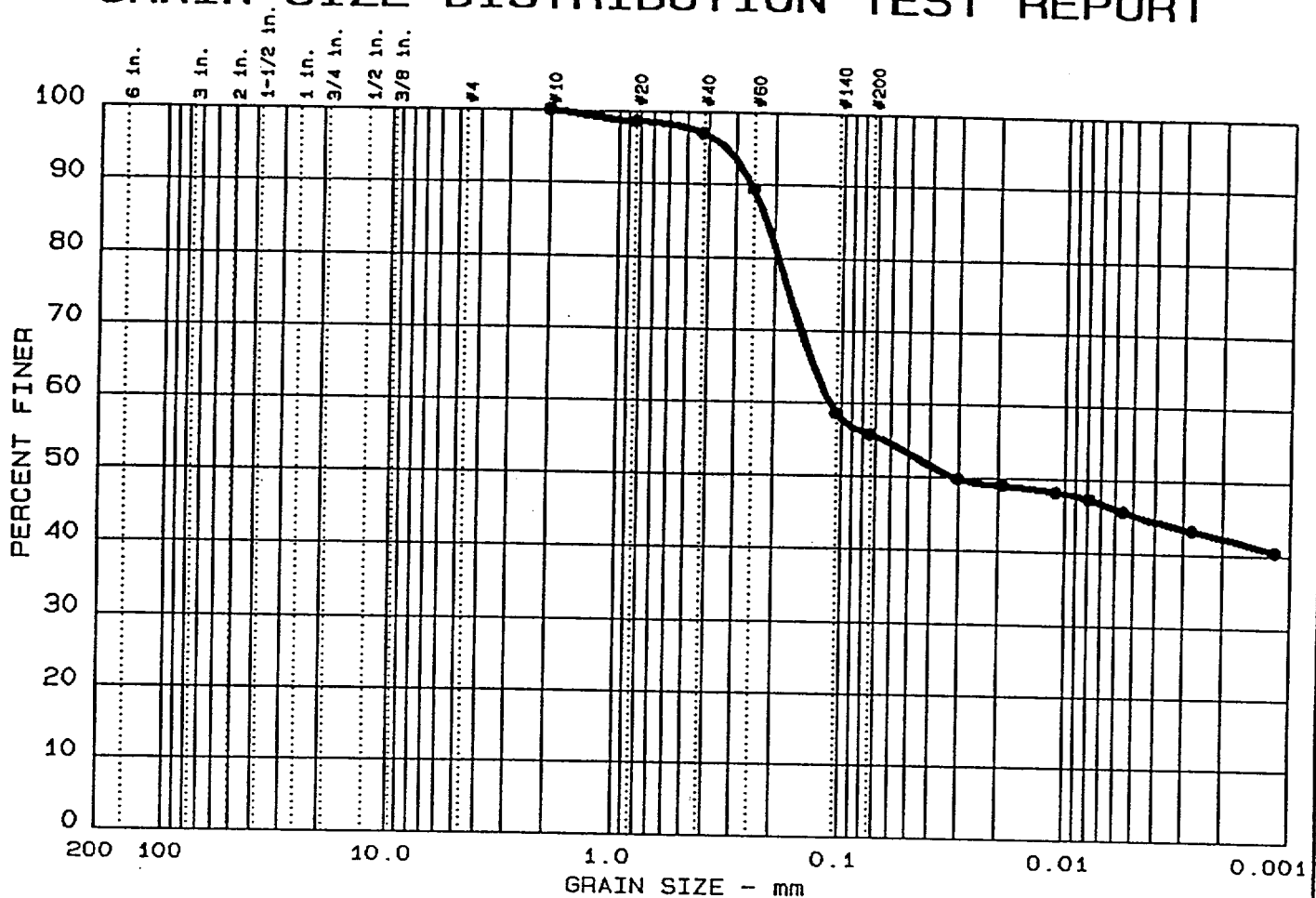
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
7	0.0	0.0	36.8	12.7	50.5

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
86	50	0.18		0.00					

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Sandy Fat Clay	CH	A-7-5 (31.2)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion Location: FB-22 SS-51 @ 82.8-84.3 Ft. Date: July 9, 1998	Remarks: Tested by: J. T. Jones Reviewed by: H Moisture Content = 54.6% ASTM D422, D4318 & D2216
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 18	0.0	0.0	44.3	10.6	45.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 63	34	0.22	0.11	0.03					

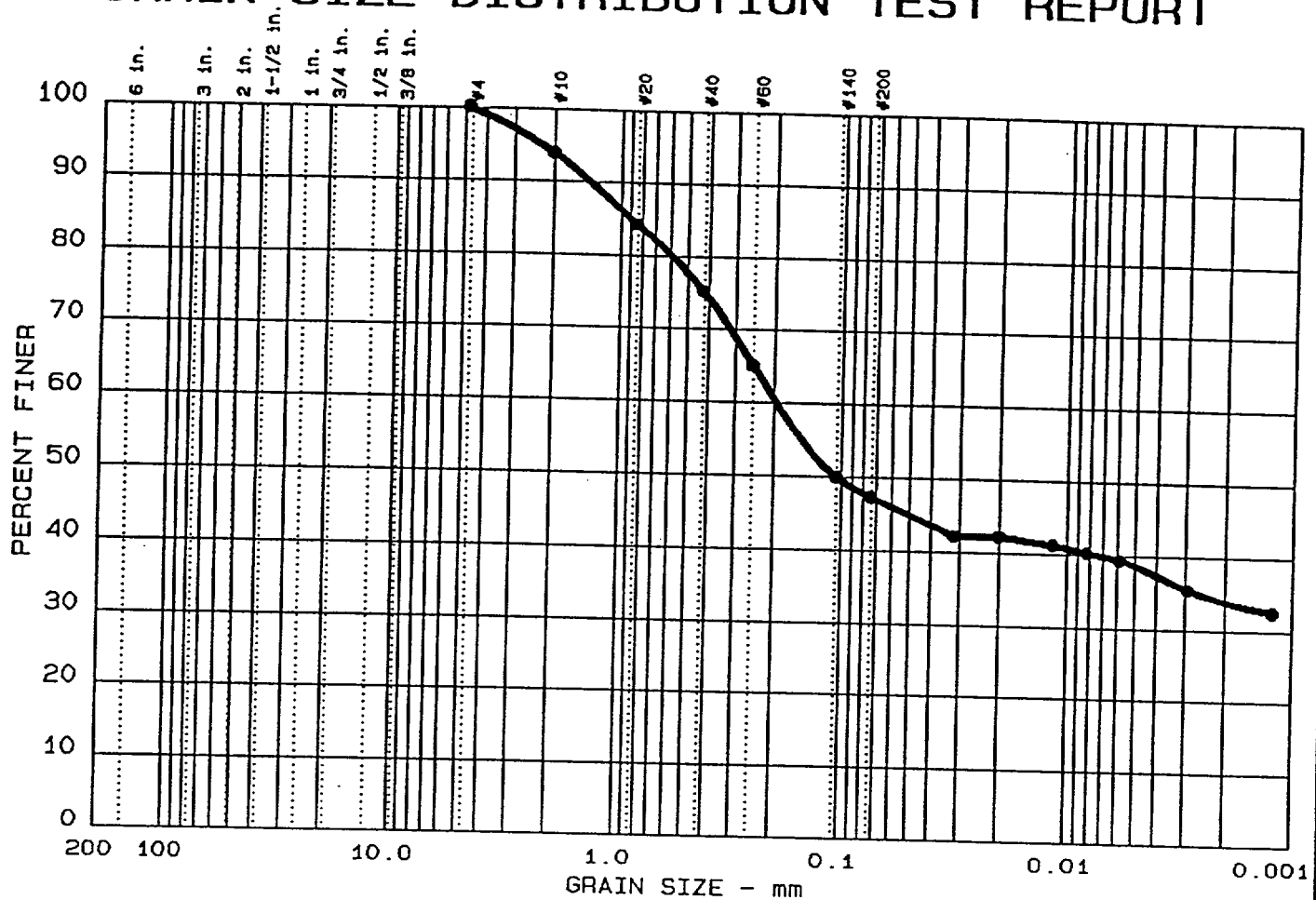
MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Sandy Fat Clay	CH	A-7-6 (16.5)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-52 @ 84.6-86.1 Ft.
 Date: July 9, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SCJ/DM*
 Reviewed by: *HD*
 Moisture Content = 54.2%
 ASTM D422 & D4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	52.8	8.7	38.5

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
82	45	0.88	0.19	0.11					

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Silty Sand	SM	A-7-5 (16.1)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-53 @ 86.1-87.6 Ft.
 Date: July 5, 1998

Remarks:

Tested by: *SC Johnson*

Reviewed by: *[Signature]*

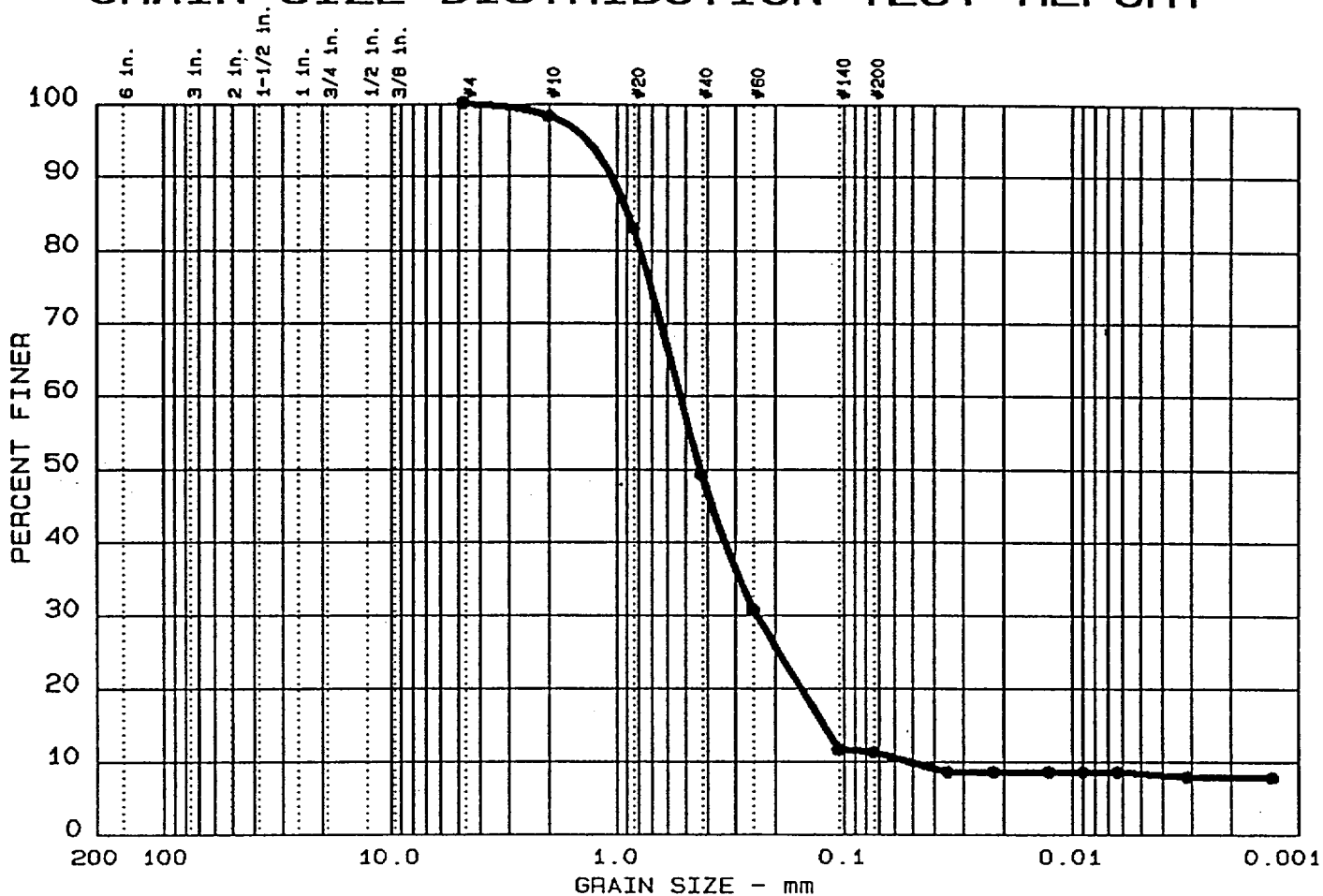
Moisture Content = 67.7%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	88.8	2.8	8.4

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
NL	NP	0.88	0.52	0.43	0.243	0.1216	0.0513	2.20	10.2

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan Brown Well Graded Sand with Silt	SW-SM	A-1-b

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-22 SS-54 @ 88.0-89.5 Ft.

Date: July 5, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC & Jm*

Reviewed by: *VB*

Moisture Content = 30.1%

ASTM D422, D4318 & D2216

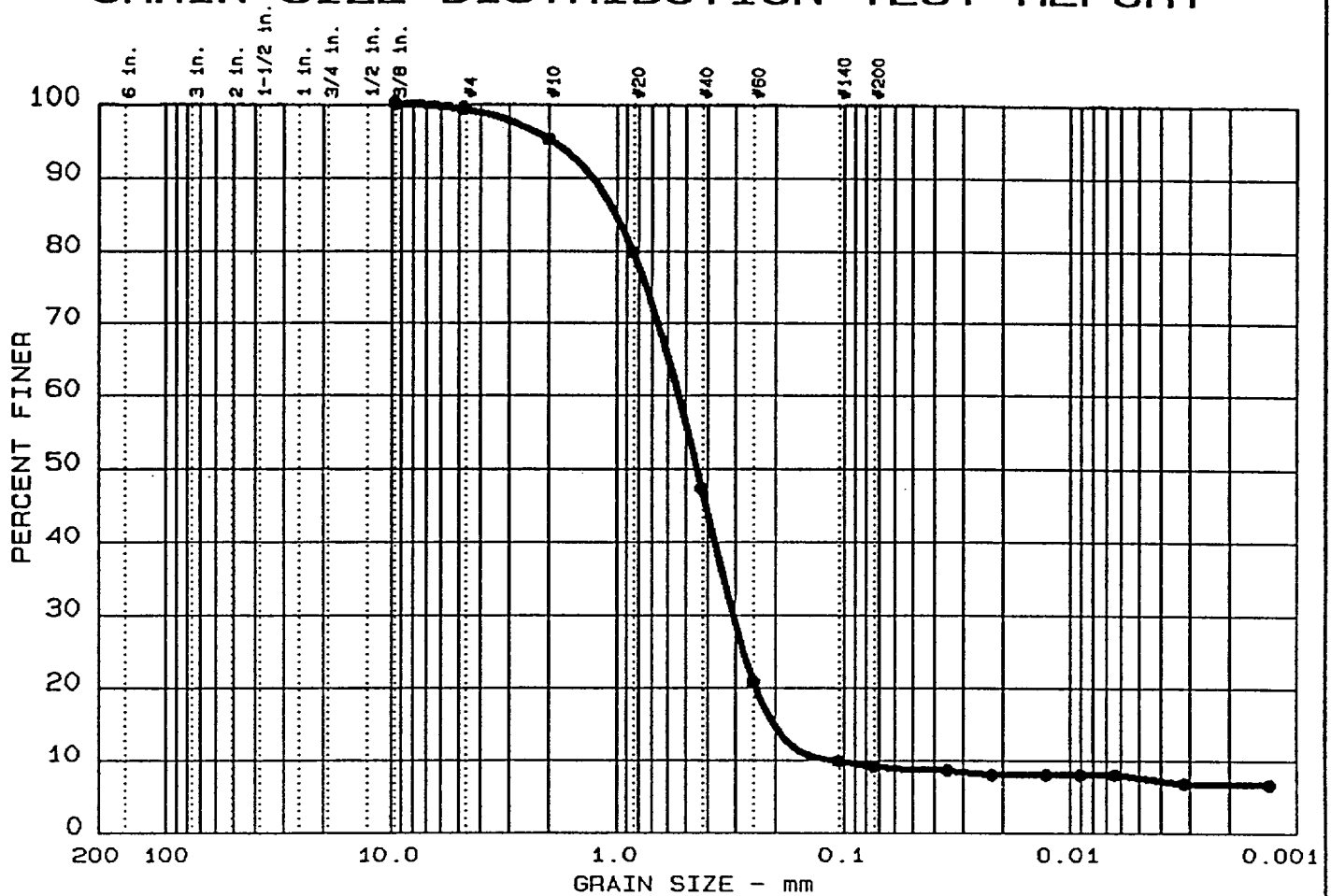
Figure No.

Grain size distribution test report graph showing Percent Finer vs Grain Size (mm). The curve starts at 100% finer for 200 mm and drops sharply between 1.0 mm and 0.075 mm, leveling off at approximately 5% finer for 0.075 mm and below.

Grain Size (mm)	Percent Finer (%)
200	100
100	100
60	100
40	100
30	100
20	100
15	100
10	100
7.5	100
5	98
3	80
2	55
1.5	35
1.0	10
0.75	7
0.6	6
0.425	5
0.3	5
0.25	5
0.2	5
0.15	5
0.125	5
0.106	5
0.09	5
0.075	5
0.06	5
0.05	5
0.0425	5
0.0375	5
0.03	5
0.025	5
0.02	5
0.015	5
0.0125	5
0.0106	5
0.009	5
0.0075	5
0.006	5
0.005	5
0.00425	5
0.00375	5
0.003	5
0.0025	5
0.002	5
0.0015	5
0.00125	5
0.00106	5
0.0009	5
0.00075	5
0.0006	5
0.0005	5
0.000425	5
0.000375	5
0.0003	5
0.00025	5
0.0002	5
0.00015	5
0.000125	5
0.000106	5
0.00009	5
0.000075	5
0.00006	5
0.00005	5
0.0000425	5
0.0000375	5
0.00003	5
0.000025	5
0.00002	5
0.000015	5
0.0000125	5
0.0000106	5
0.000009	5
0.0000075	5
0.000006	5
0.000005	5
0.00000425	5
0.00000375	5
0.000003	5
0.0000025	5
0.000002	5
0.0000015	5
0.00000125	5
0.00000106	5
0.0000009	5
0.00000075	5
0.0000006	5
0.0000005	5
0.000000425	5
0.000000375	5
0.0000003	5
0.00000025	5
0.0000002	5
0.00000015	5
0.000000125	5
0.000000106	5
0.00000009	5
0.000000075	5
0.00000006	5
0.00000005	5
0.0000000425	5
0.0000000375	5
0.00000003	5
0.000000025	5
0.00000002	5
0.000000015	5
0.0000000125	5
0.0000000106	5
0.000000009	5
0.0000000075	5
0.000000006	5
0.000000005	5
0.00000000425	5
0.00000000375	5
0.000000003	5
0.0000000025	5
0.000000002	5
0.0000000015	5
0.00000000125	5
0.00000000106	5
0.0000000009	5
0.00000000075	5
0.0000000006	5
0.0000000005	5
0.000000000425	5
0.000000000375	5
0.0000000003	5
0.00000000025	5
0.0000000002	5
0.00000000015	5
0.000000000125	5
0.000000000106	5
0.00000000009	5
0.000000000075	5
0.00000000006	5
0.00000000005	5
0.0000000000425	5
0.0000000000375	5
0.00000000003	5

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-22 SS-55 @ 89.5-91.0 Ft.	Remarks: Tested by: <i>SCJ/Tm</i> Reviewed by: <i>h</i> Moisture Content = 23.3% ASTM D422, D4318 & D2216
Date: July 5, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	
	Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.6	90.2	1.5	7.7

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
50	27	1.00	0.53	0.44	0.307	0.2028	0.1102	1.61	4.8

MATERIAL DESCRIPTION	USCS	AASHTO
● Tan. Brown Poorly Graded Sand with Clay	SP-SC	A-2-7 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-22 SS-58 @ 94.0-95.5 Ft.

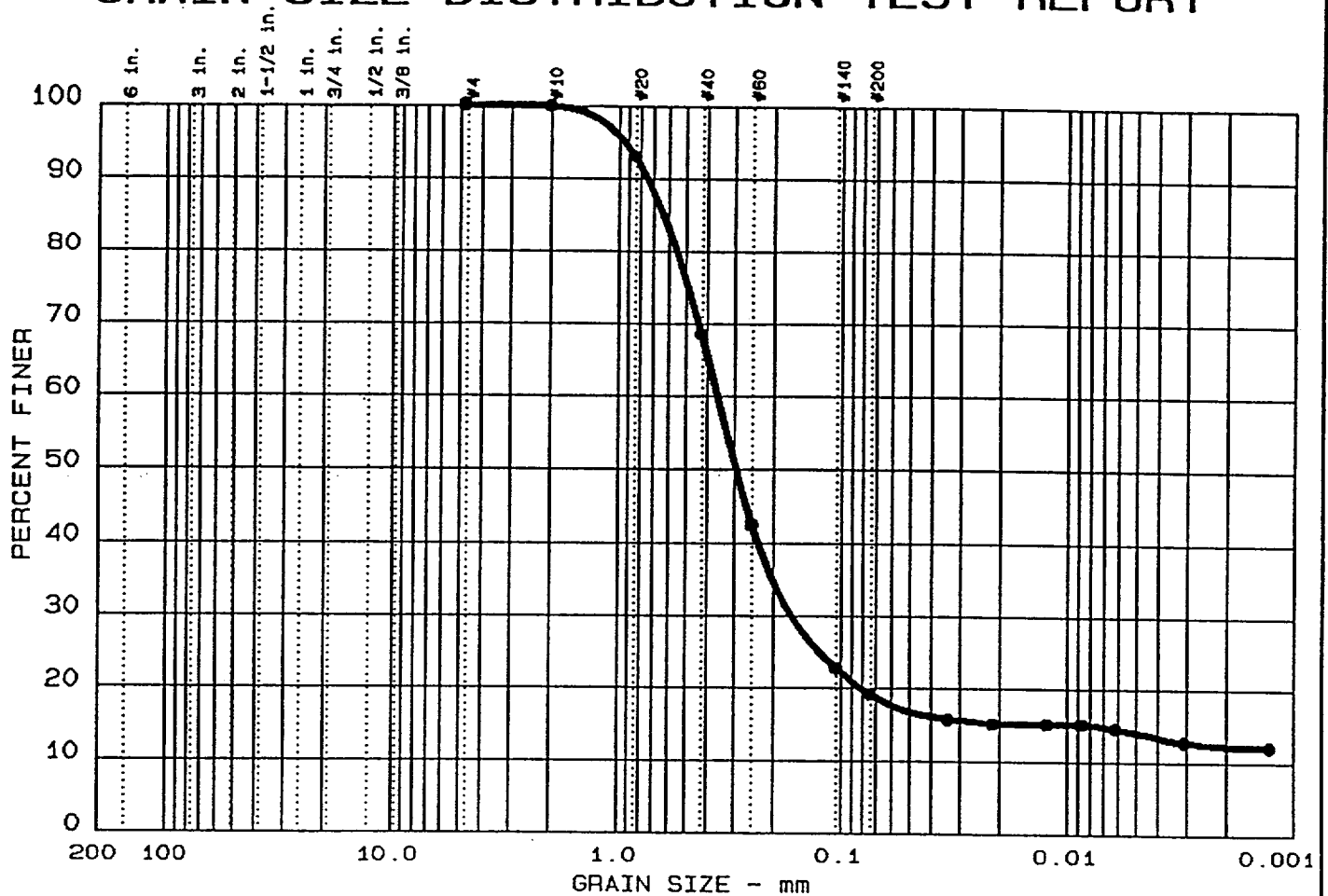
 Date: July 5, 1998

Remarks:
 Tested by: *SCJ/m*
 Reviewed by: *H*
 Moisture Content = 30.1%
 ASTM D422, D4318 & D2216

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	80.8	5.1	14.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
42	18	0.62	0.35	0.29	0.167	0.0077			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Clayey Sand	SC	A-2-7 (0.3)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-59 @ 95.5-97.0 Ft.

Date: July 5, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SCJ/m*

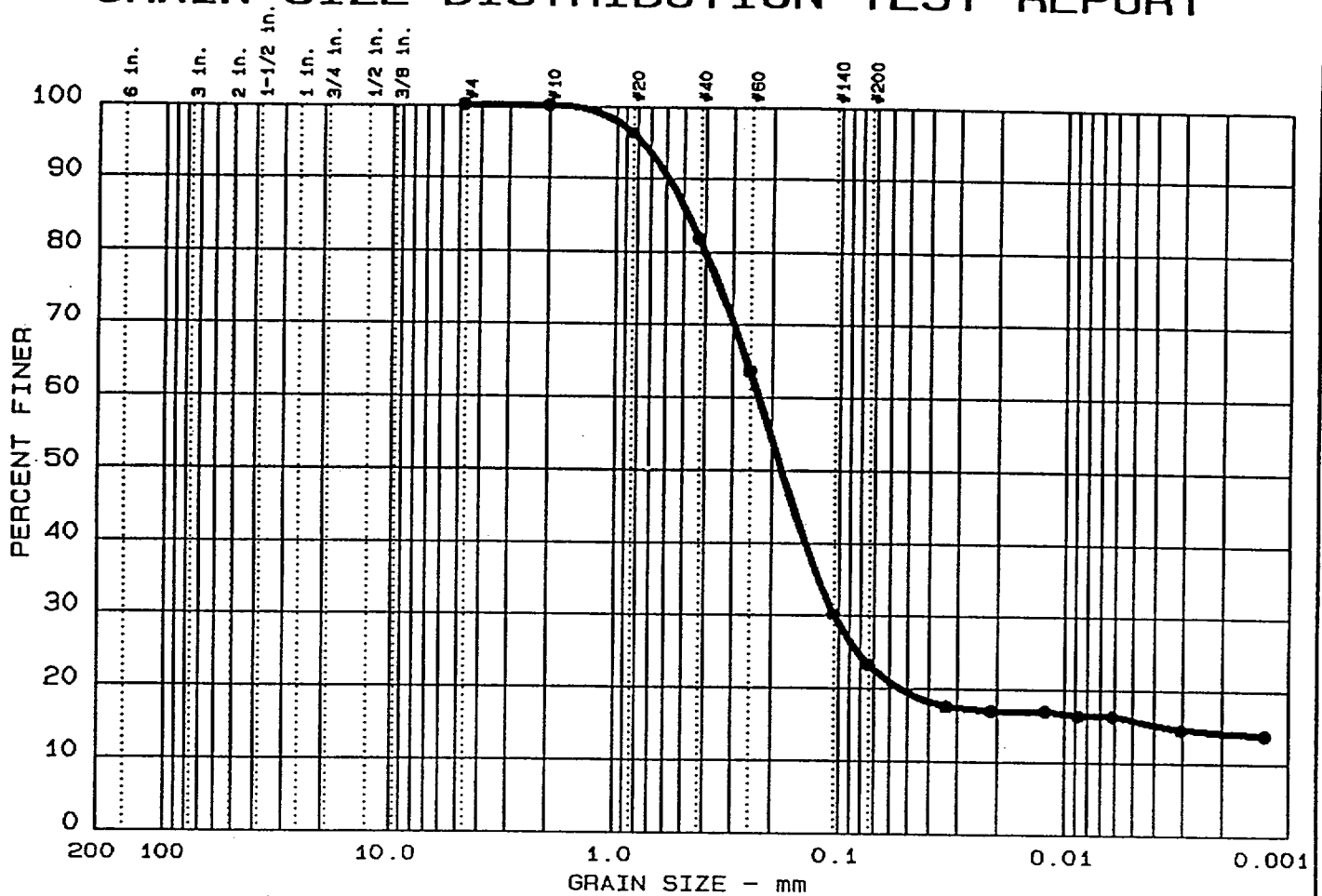
Reviewed by: *h*

Moisture Content = 30.6%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	76.7	7.4	15.9

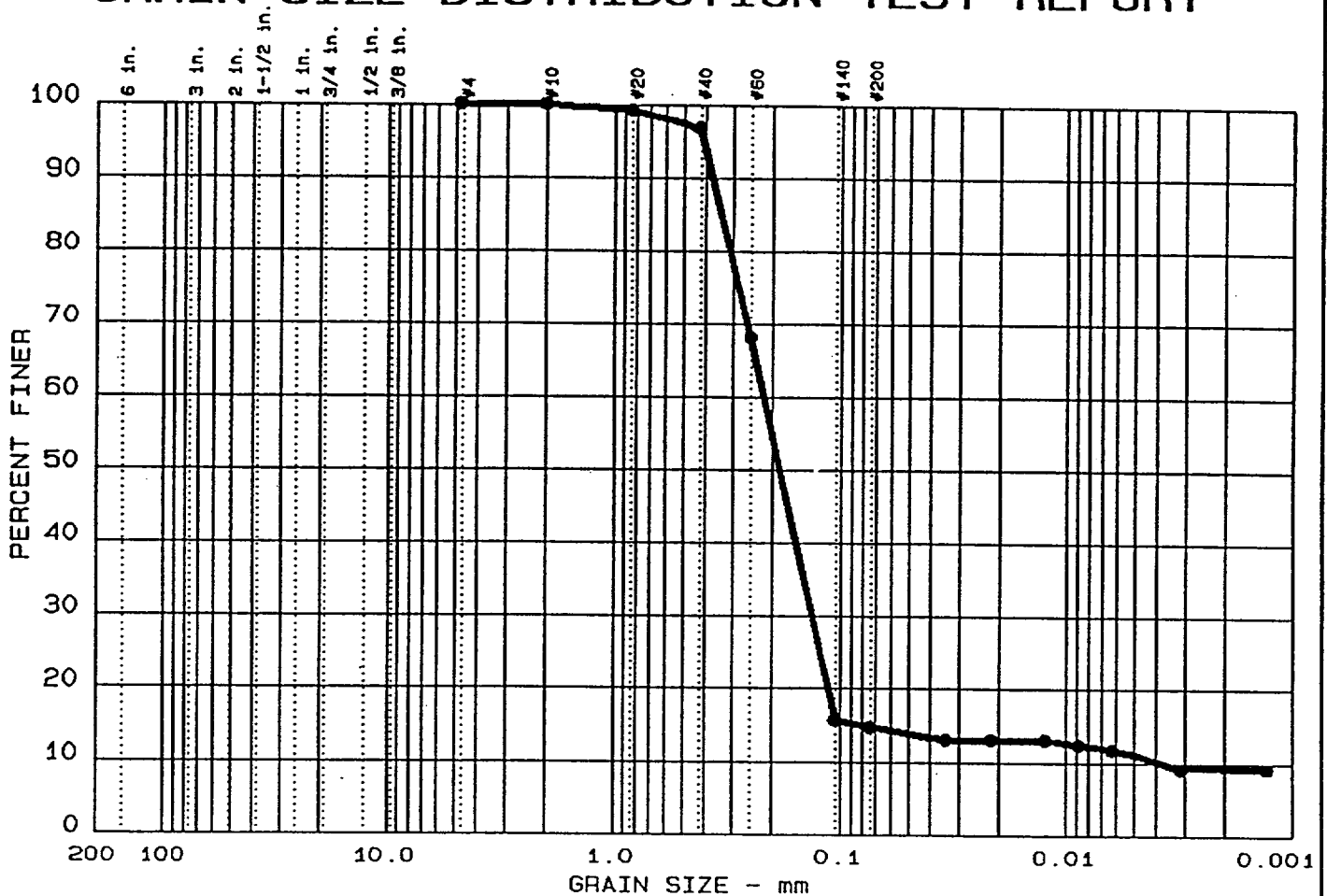
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
41	16	0.47	0.23	0.18	0.104	0.0034			

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Clayey Sand	SC	A-2-7 (0.5)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-61 @ 98.5-100.0 Ft.
 Date: July 5, 1998
 GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:
 Tested by: *SC + Jm*
 Reviewed by: *W*
 Moisture Content = 29.9%
 ASTM D422, D4318 & D2216
 Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	85.3	3.6	11.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
NL	NP	0.34	0.22	0.19	0.133	0.0811	0.0037	21.90	58.8

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Silty Sand	SM	A-2-4 (0.0)

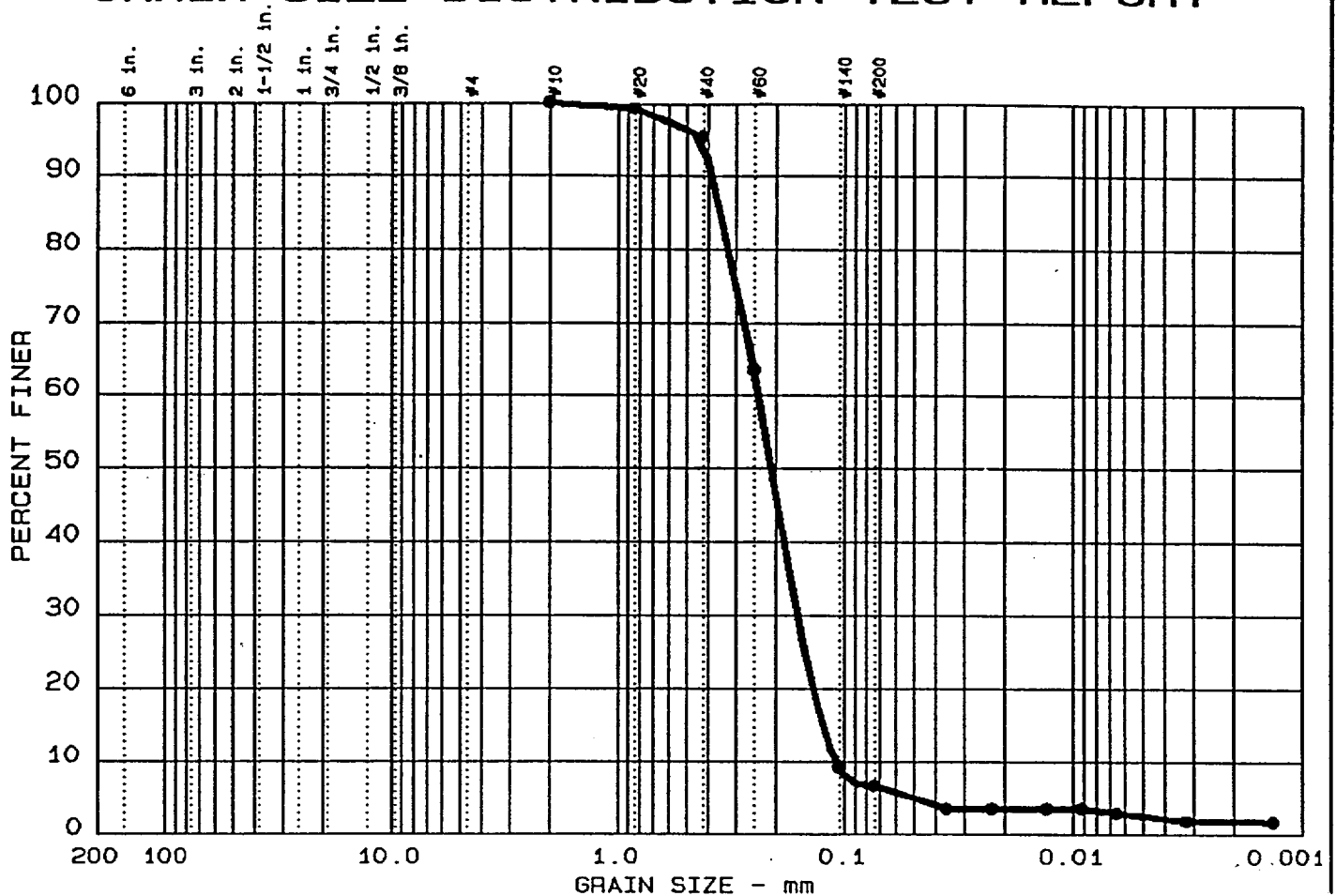
Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-62 @ 100.0-101.5 Ft.
 Date: July 5, 1998

Remarks:
 Tested by: *SCJ/SM*
 Reviewed by: *HP*
 Moisture Content = 34.9%
 ASTM D422, D4318 & D2216

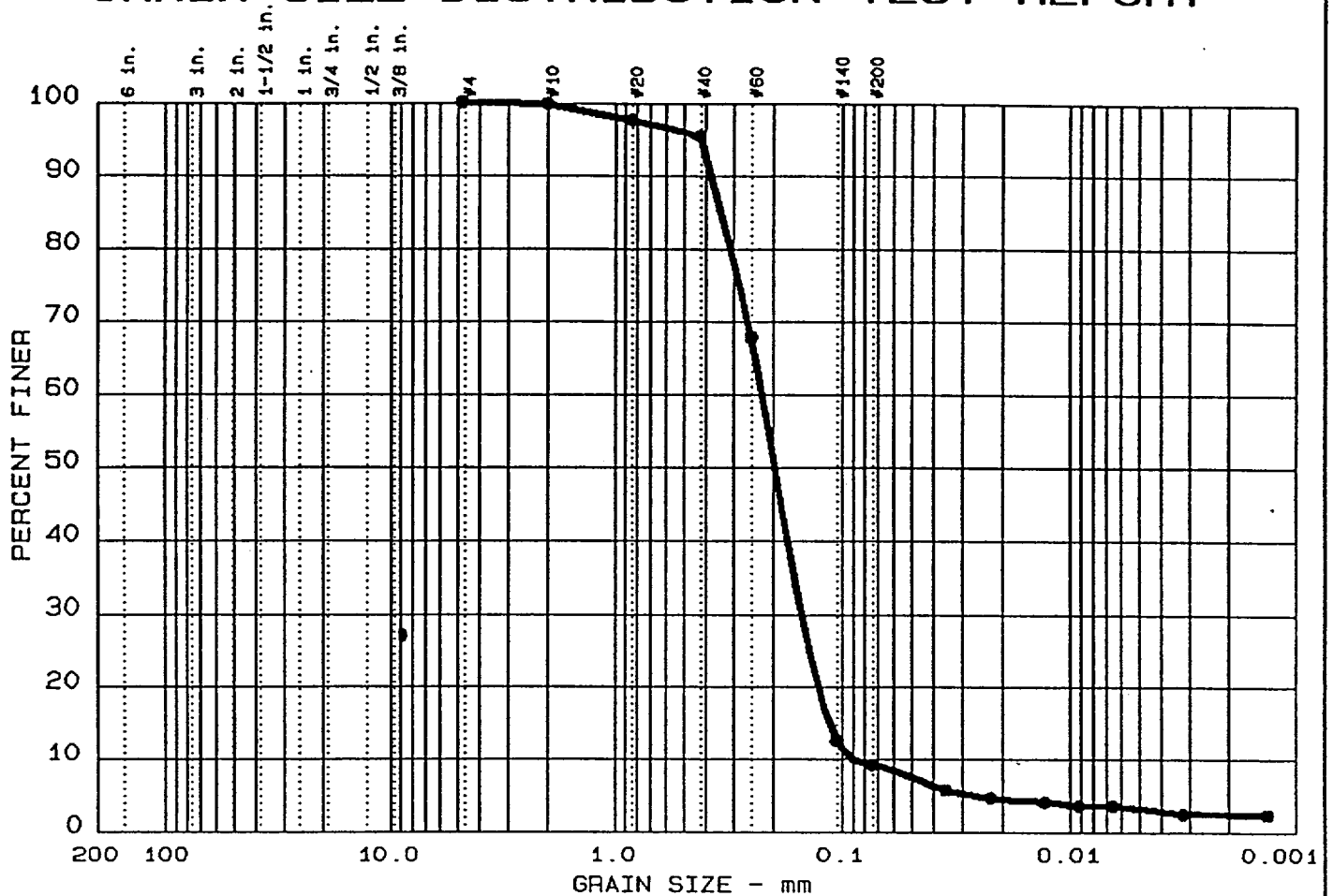
GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



% +3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	90.8	6.1	3.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
NL	NP	0.34	0.22	0.20	0.150	0.1132	0.0899	1.11	2.5

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-65 @ 104.5-105.83 Ft.

Date: July 5, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SCJ/TM*

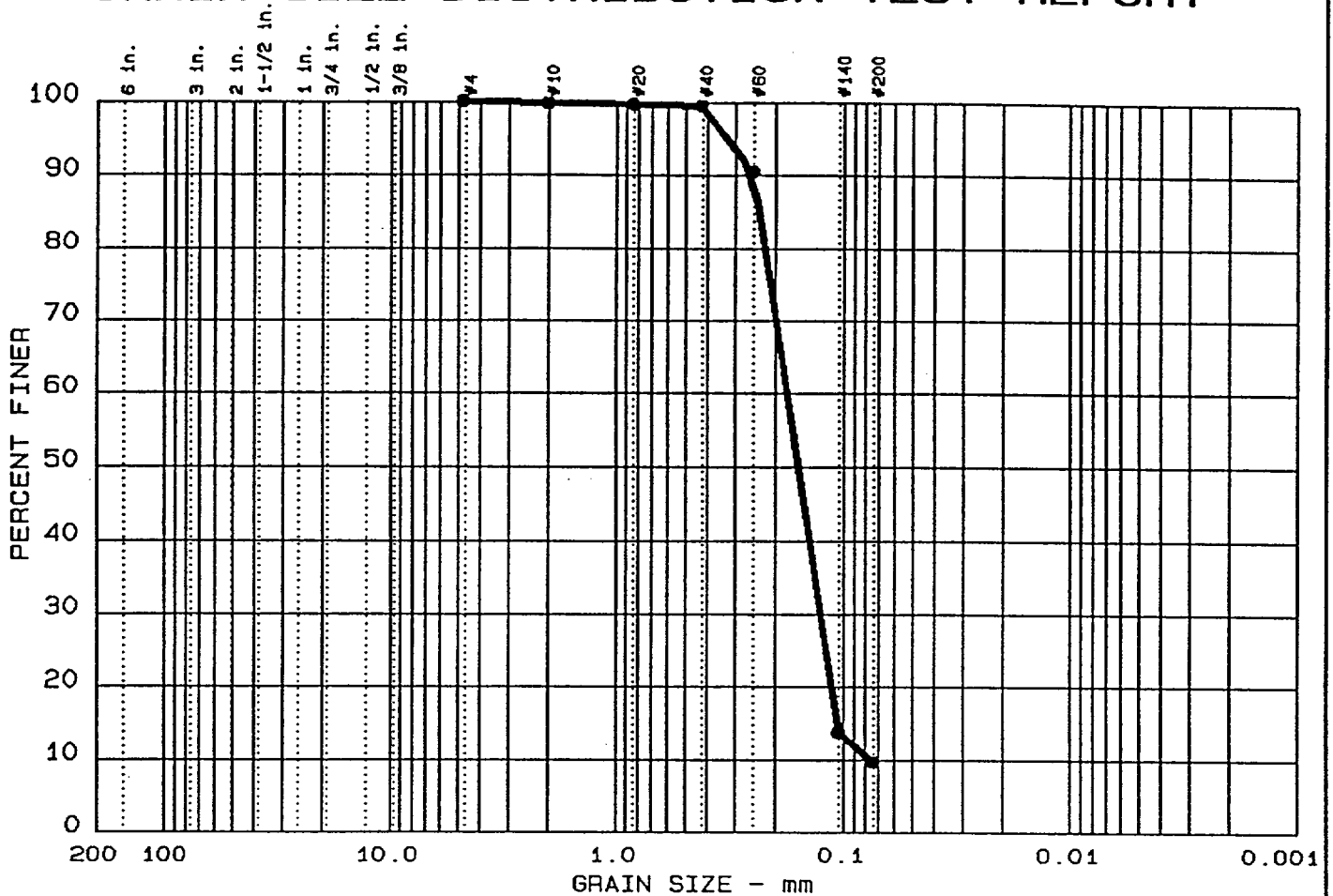
Reviewed by: *HT*

Moisture Content = 21.0%

ASTM D422, D4318 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
1	0.0	0.0	90.3	9.7	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.23	0.18	0.16	0.126	0.1064	0.0753	1.19	2.3

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-22 SS-67 @ 107.5-109.0 Ft.

Date: June 25, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: SC

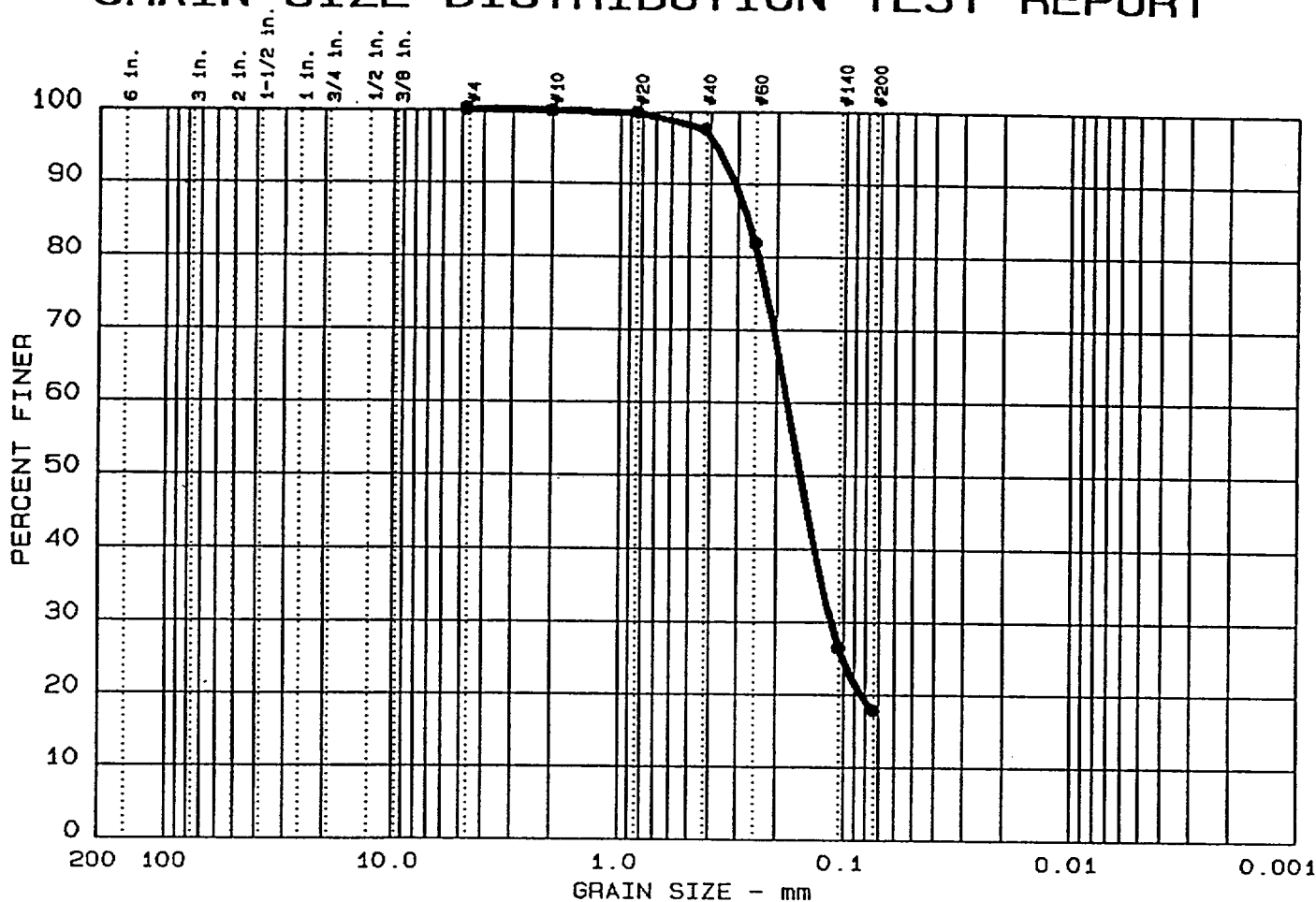
Reviewed by: H

Moisture Content = 24.9%

ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 2	0.0	0.0	82.2	17.8	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.27	0.18	0.16	0.114				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Silty Sand	SM	A-2-4 (0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-70 @ 112.0-113.5 Ft.

Date: June 25, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC*

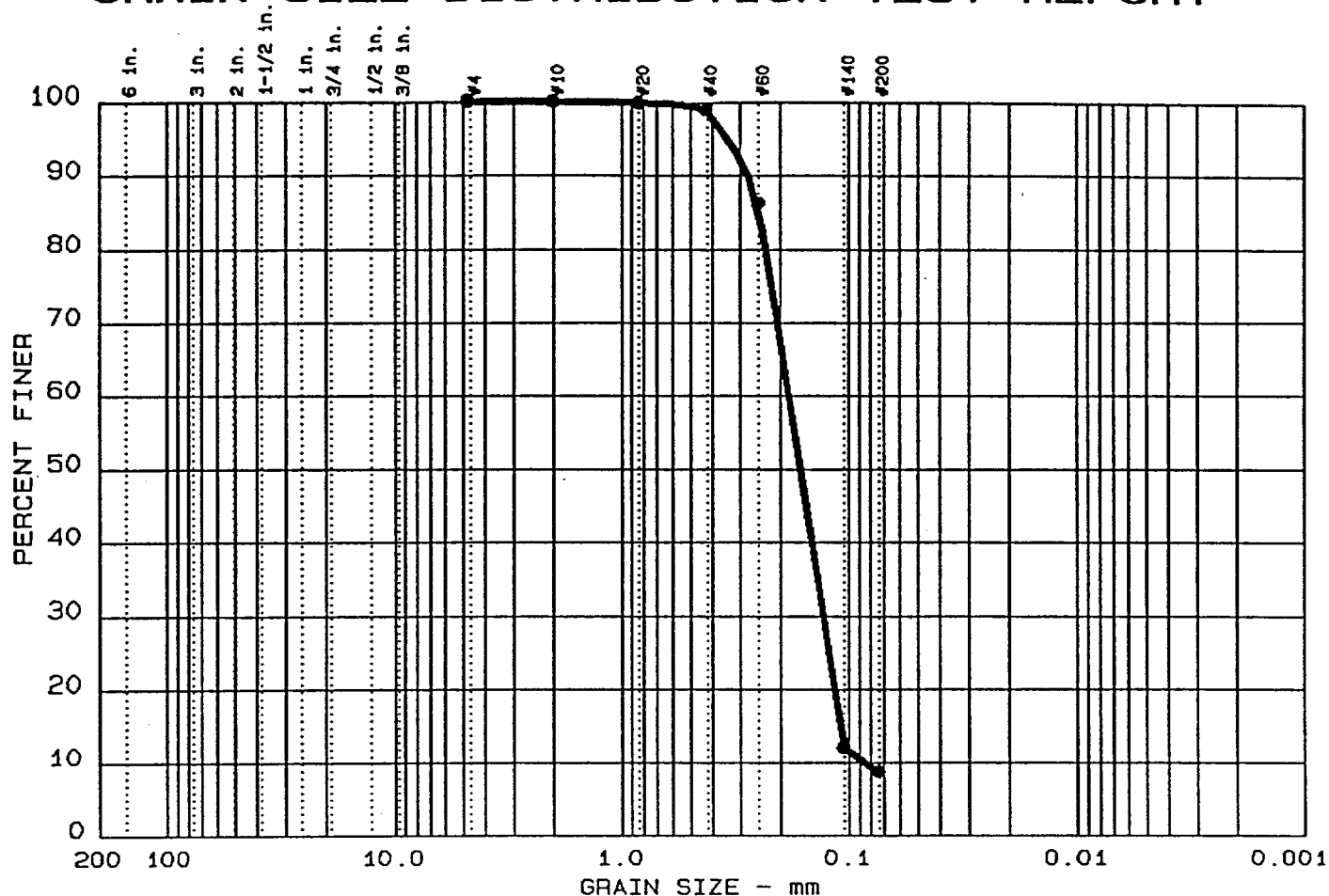
Reviewed by: *HD*

Moisture Content = 34.1%

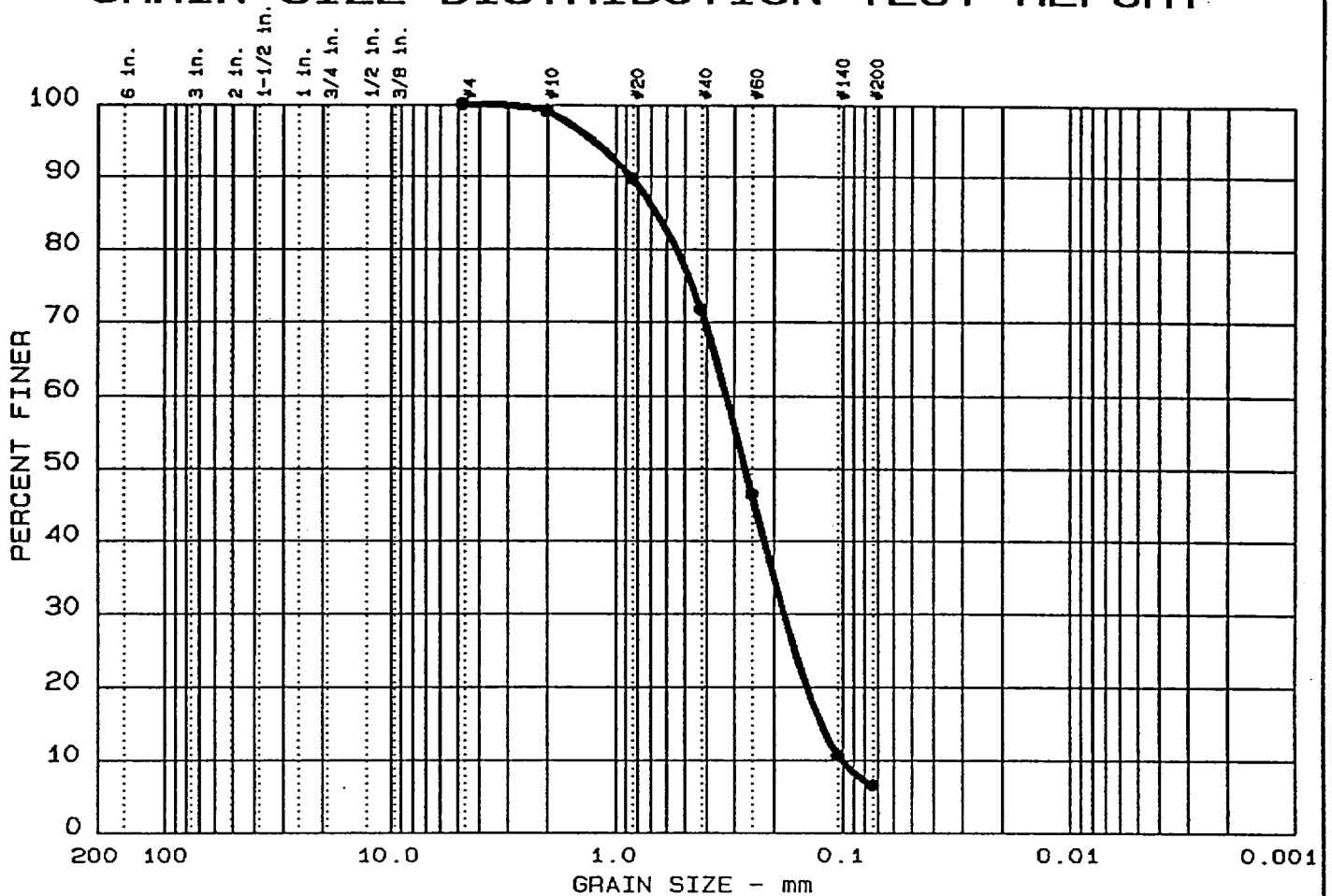
ASTM D422 & D2216

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
7	0.0	0.0	93.4	6.6	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		0.65	0.32	0.27	0.181	0.1236	0.1005	1.00	3.2

MATERIAL DESCRIPTION	USCS	AASHTO
Tan Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 Location: FB-22 SS-75 @ 119.5-121.0 Ft.

Date: June 25, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: *SC+CS*

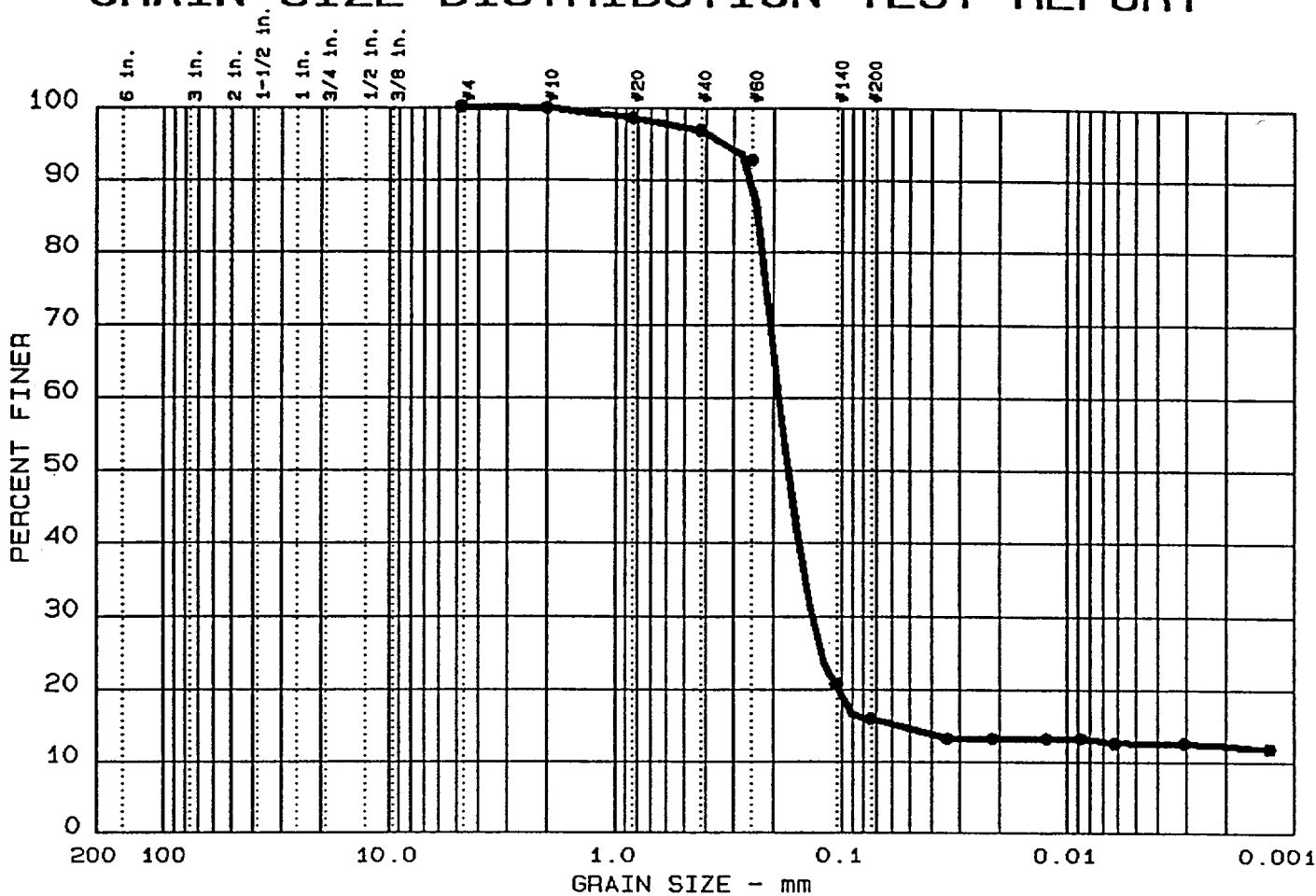
Reviewed by: *HB*

Moisture Content = 17.4%

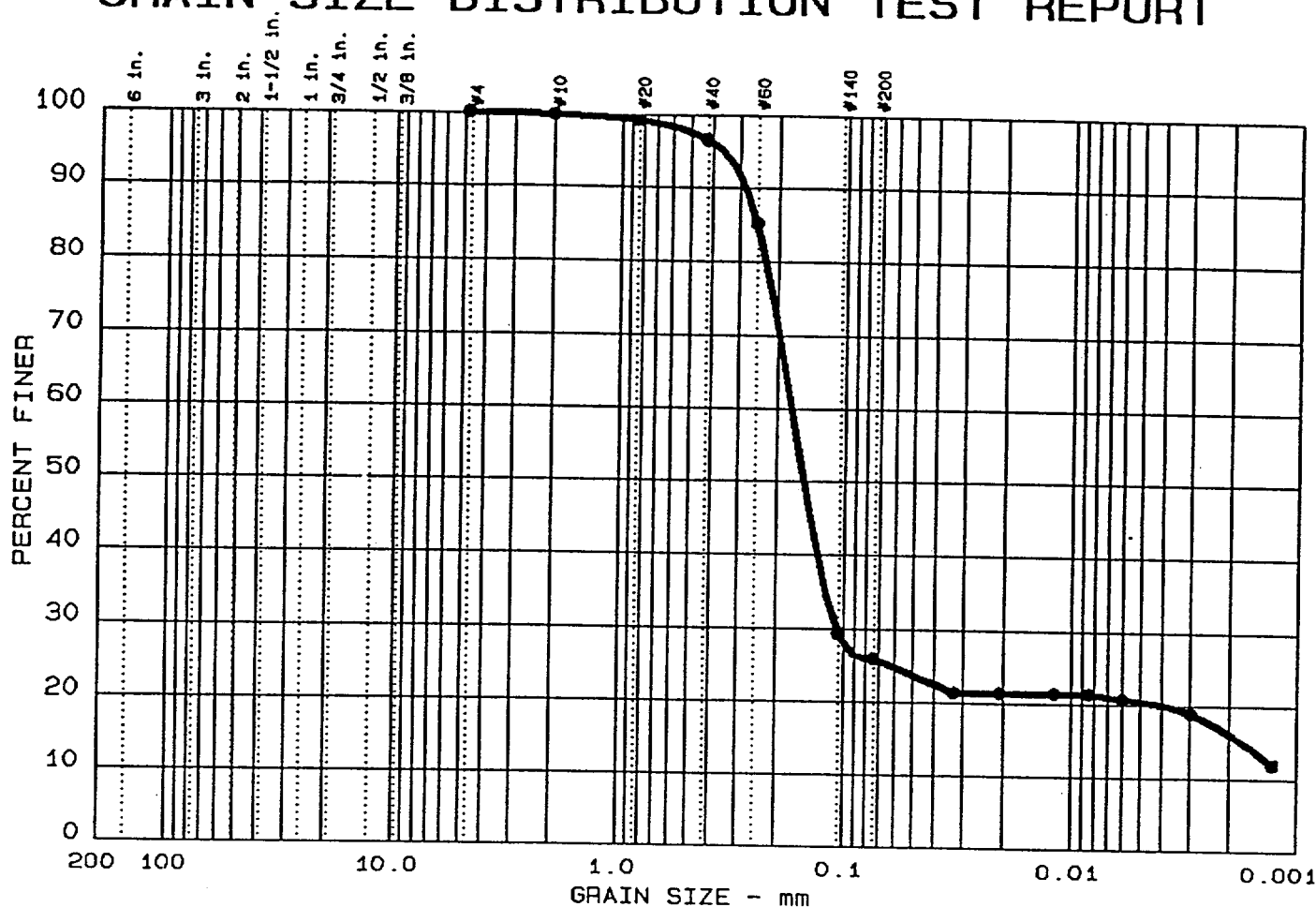
ASTM D422 & D2216

Figure No.

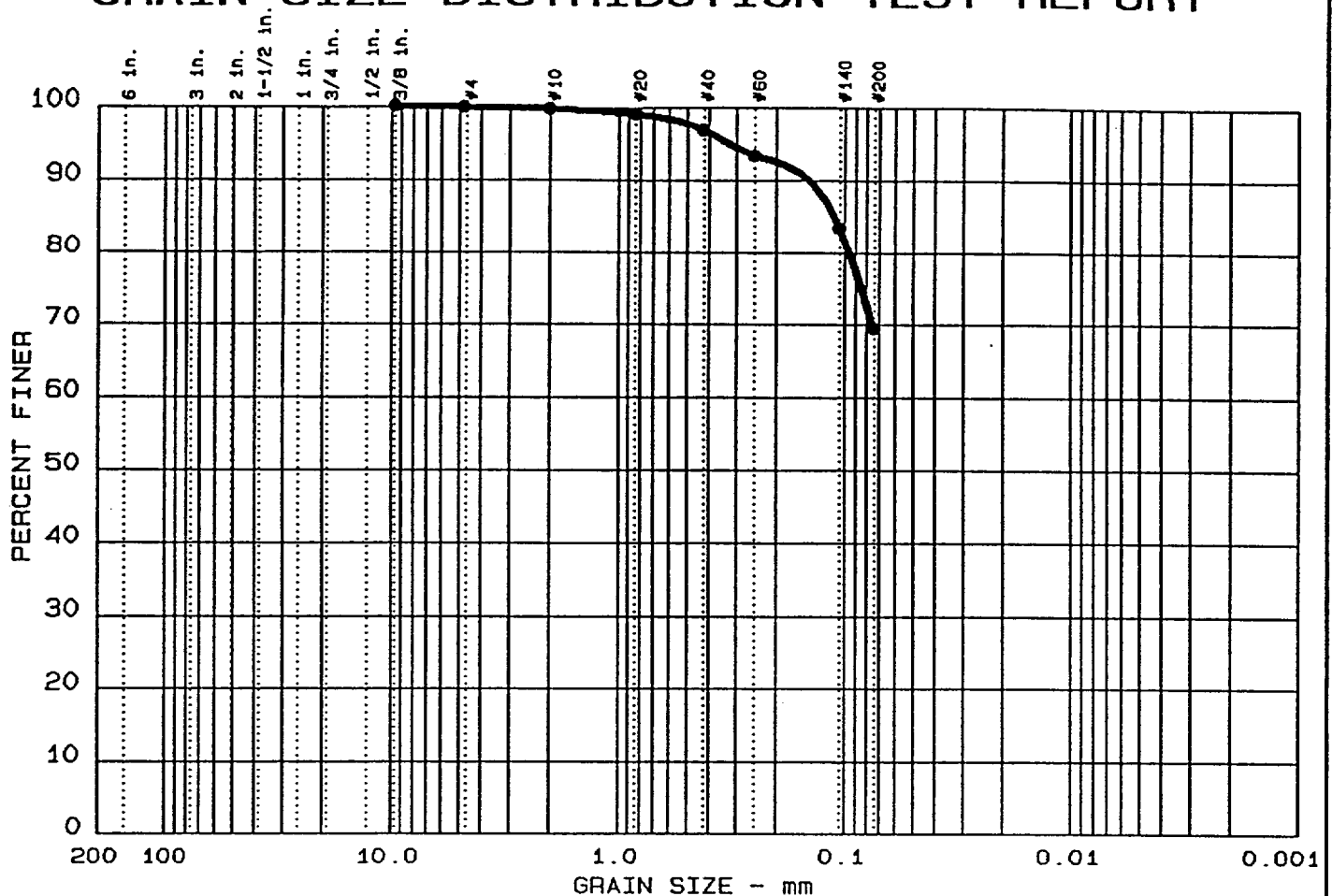
GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



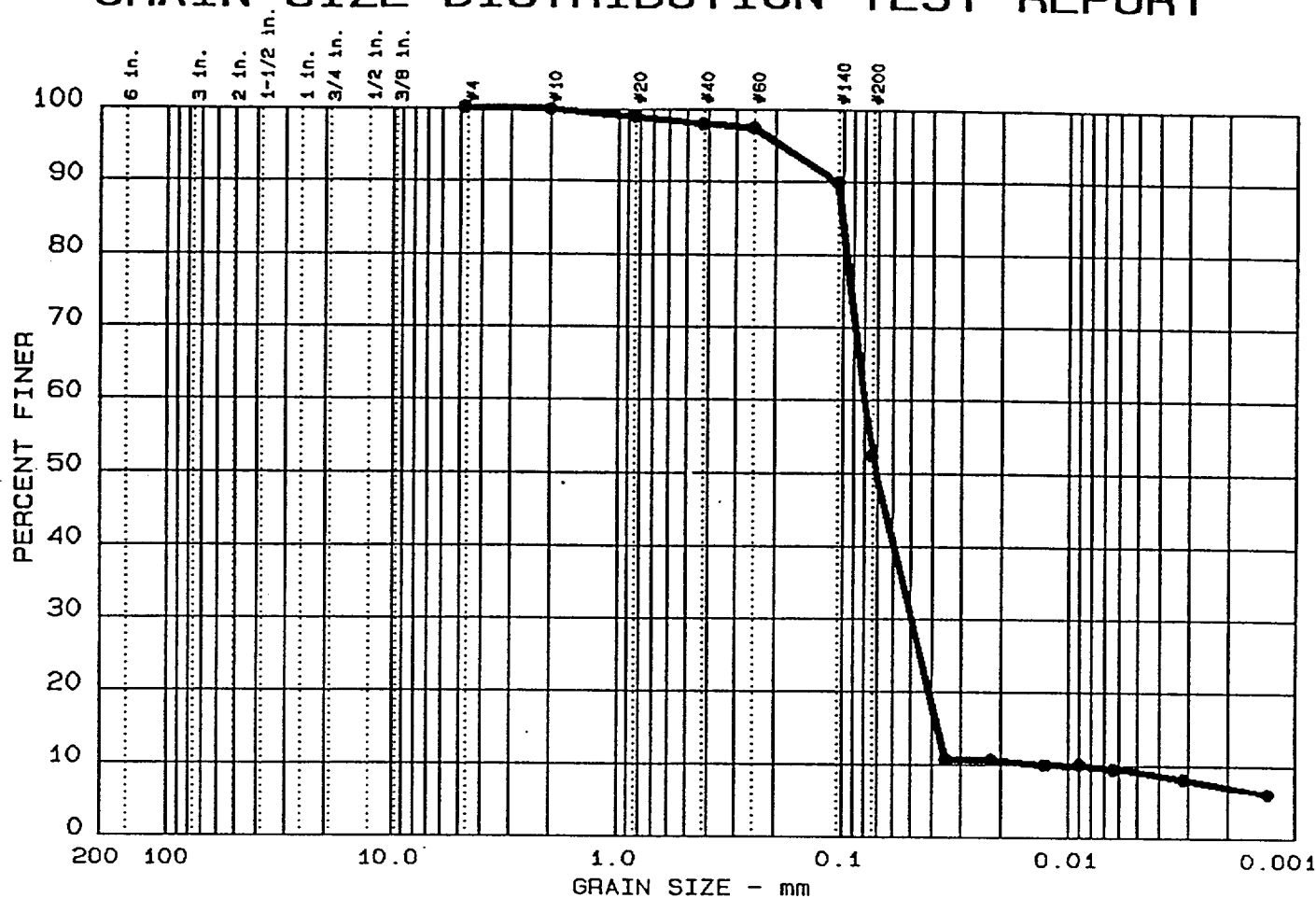
Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 10	0.0	0.1	30.4	69.5	

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
•		0.11							

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown Sandy Silt	ML	A-4 (0.0)

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion • Location: FB-22 SS-84 @ 133.0-134.5 Ft. Date: June 25, 1998	Remarks: Tested by: SC & CS Reviewed by: HB Moisture Content = 34.0% ASTM D422 & D2216 Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
● 20	0.0	0.0	47.6	43.2	9.2

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
● NL	NP	0.10	0.08	0.07	0.049	0.0374	0.0100	3.03	8.0

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Sandy Silt	ML	A-4(0.0)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 ● Location: FB-22 SS-85 @ 134.5-136.0 Ft.

Date: July 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: JTM/SC

Reviewed by: H

Moisture Content = 38.7%

ASTM D422 & D4318

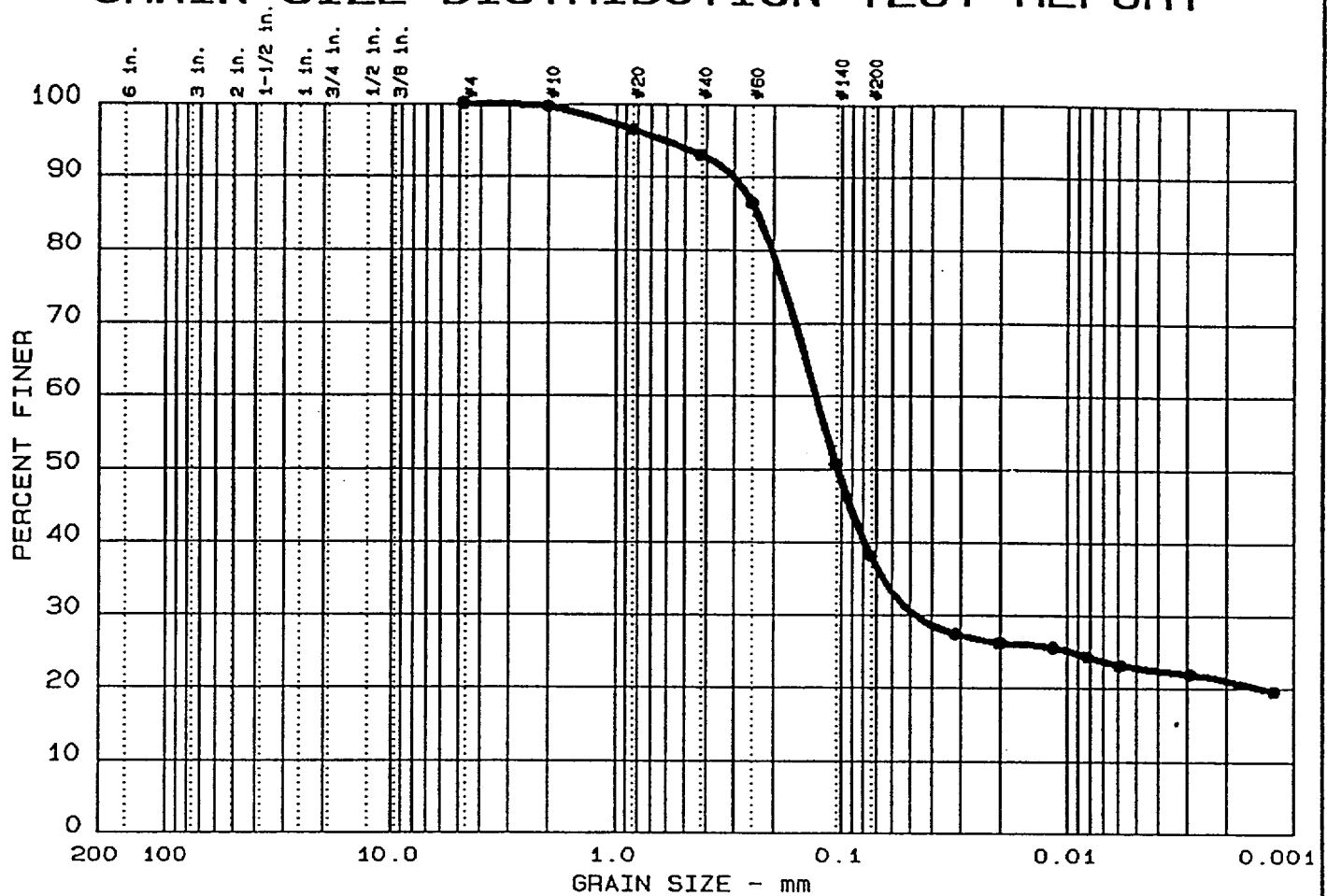
Figure No.

Sieve / Grain Size	Percent Finer (%)
6 in.	100
3 in.	100
2 in.	100
1 1/2 in.	100
1 in.	84
3/4 in.	84
1/2 in.	81
3/8 in.	72
#4	67
#10	63
#20	59
#40	56
#60	51
#140	34
#200	21
0.85 mm	5
0.6 mm	4
0.425 mm	4
0.3 mm	3
0.25 mm	2
0.15 mm	1
0.075 mm	0

[illegible]

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion ♦ Location: FB-22 SS-86 @ 136-137.5 Ft.	Remarks: Tested by: <i>JTM+SC</i> Reviewed by: <i>1B</i> Moisture Content = 34.7% ASTM D422, D4318 & D2216
Date: July 9, 1998	Figure No.
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
• 16	0.0	0.0	62.0	15.2	22.8

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
• 41	19	0.24	0.13	0.10	0.047				

MATERIAL DESCRIPTION	USCS	AASHTO
• Tan Brown & Gray Clayey Sand	SC	A-7-6 (2.7)

Project No.: 50161-7-0108 Task 21
 Project: F-Area Northeast Expansion
 • Location: FB-22 SS-88 @ 139-140.5 Ft.
 Date: July 9, 1998

Remarks:

Tested by: *SC JST*

Reviewed by: *W*

Moisture Content = 31.8%

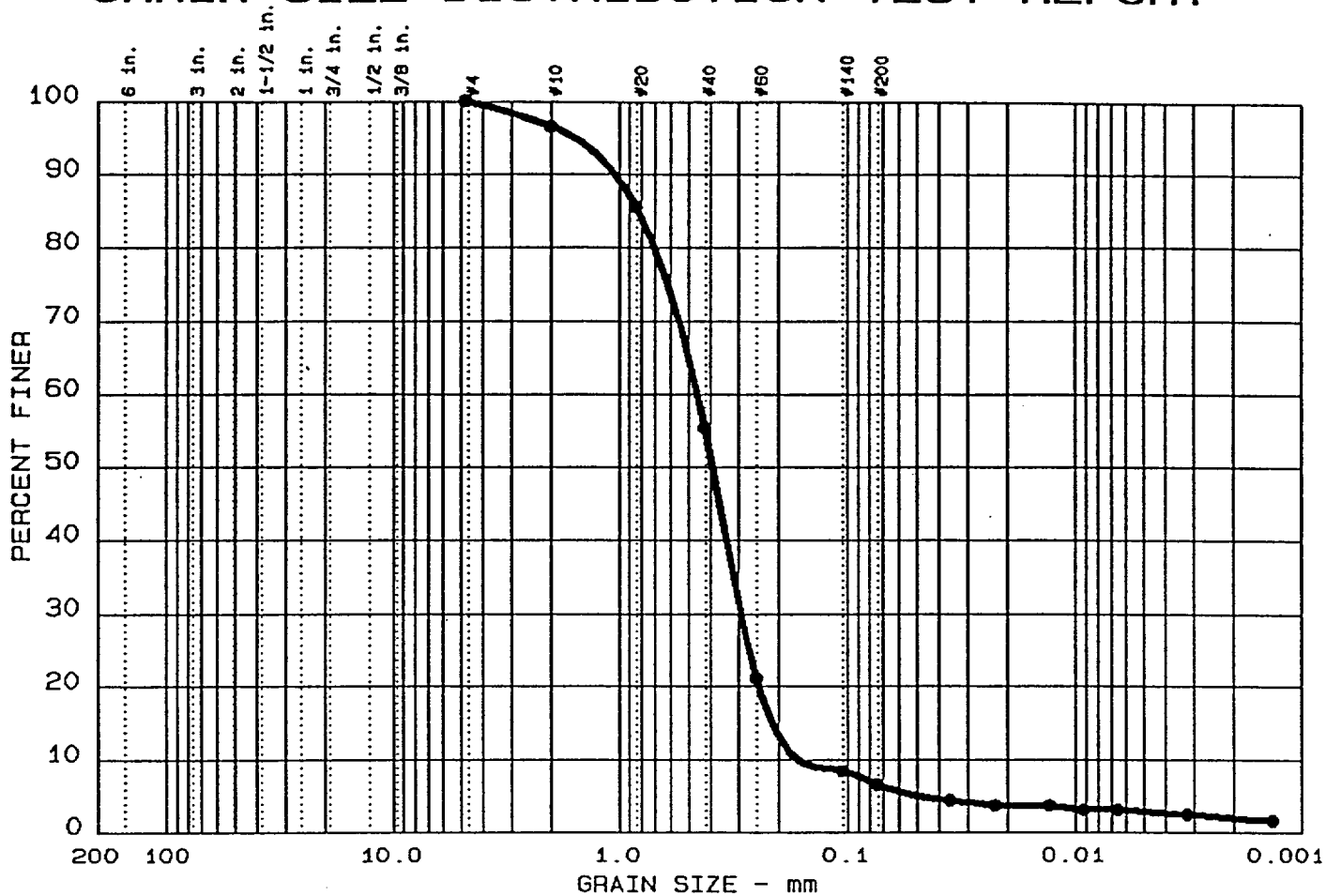
ASTM D422 & D4318

Figure No.

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Project No.: 50161-7-0108 Task 21 Project: F-Area Northeast Expansion ● Location: FB-22 SS-90 @ 142-143.25 Ft.	Remarks: Tested by: JTM JSC Reviewed by: HB Moisture Content = 21.2% ASTM D422, D4318 & D2216
Date: July 9, 1998	
GRAIN SIZE DISTRIBUTION TEST REPORT LAW ENGINEERING, INC.	
Figure No.	

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
4	0.0	0.0	93.5	3.7	2.8

[illegible]

MATERIAL DESCRIPTION	USCS	AASHTO
● Brown Poorly Graded Sand with Silt	SP-SM	A-3

Project No.: 50161-7-0108 Task 21
Project: F-Area Northeast Expansion
● Location: FB-22 SS-91 @ 143.5-144.33 Ft.

Date: July 9, 1998

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Remarks:

Tested by: JTM & SC

Reviewed by:

Moisture Content = 19.8%

ASTM D422, D4318 & D2216

Figure No.