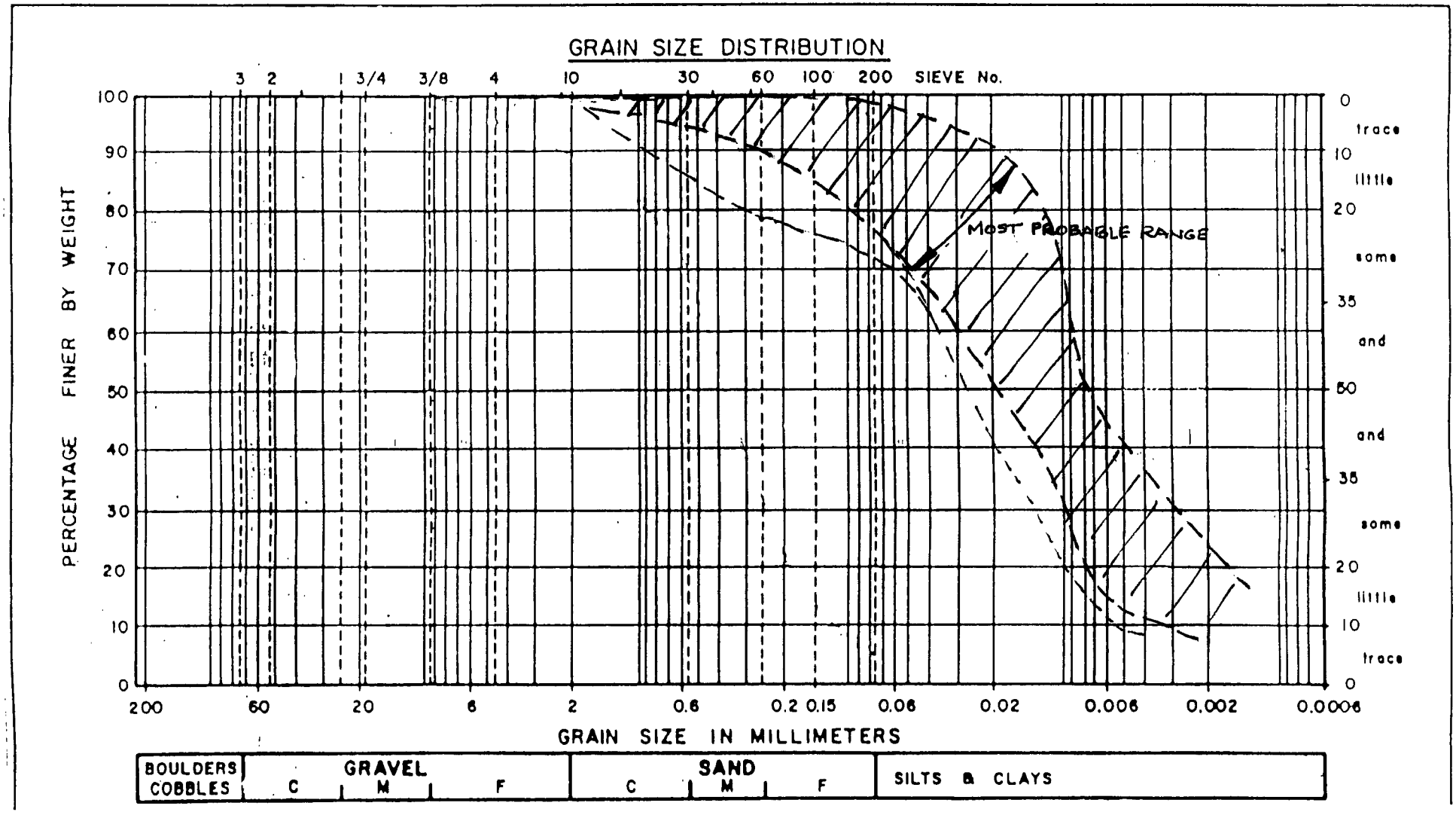
D. PARTICLE SIZE DISTRIBUTION

SUMMARY PLOT - BERTH AREAS



PHYSICAL CHARACTERISTICS OF SEDIMENTS

Sample No.	Project	Sample Type	Ø Classification System Coarse %	Sand %	Silt %	Clay %	USC(1)	Water Content %	Liquid Limit %	Plasticity Index %	Coefficient of Permeability cm/sec.(k)
1	Lower Hackensack	Grab	3	96	1	0	SP				4.1×10^{-4}
2	Celanese	Grab	0	6	80	14	OH	172.5	83.6	37.4	6.9×10^{-8}
3	Lower Passaic	Core	0	4	74	22	OH	143.4	107.6	60.2	2.9×10^{-8}
4A	Newark Bay, Port	Core	0	19	72	9	OH	180.5	93.5	54.2	3.8×10^{-8}
4B	Elizabeth	Core	0	22	70	8	OH	175.4	87.8	52.1	4.0×10^{-8}
4C		Core	0	14	80	6	OH	146.4	100.3	64.7	5.5×10^{-8}
5	Newark Bay, Lower Channel	Core	8	40	50	2	OH	69.9	53.6	29.7	5.5×10^{-8}
6	North of Shooters Island	Core	19	8	65	8	OH	132.4	122.2	72.0	3.4×10^{-8}
7	Exxon Bayway	Grab	0	5	78	17	OH	288.7	155.0	107.1	5.1×10^{-8}
8	Con Ed	Grab	37	14	42	7	SC	149.7	123.0	77.4	7.1×10^{-5}
9	US Metals	Core	0	1	85	14	OH	191.4	160.0	110.9	7.3×10^{-8}
10	Shell	Core	1	16	75	8	OH	131.3	109.7	68.4	9.3×10^{-7}
11 Top	Perth Amboy	Core	5	8	76	11	OH	169.3	116.1	63.6	7.3×10^{-6}
11 Btm	Anchorage	Core	6	93	1	0	SP				
12A	Sequine Point Bend	Core	0	4	87	9	OH	116.6	101.6	55.5	2.9×10^{-7}
12B	Sequine Point Bend	Core	0	4	81	15	OH	116.0	99.0	54.1	4.5×10^{-8}
12C	Sequine Point Bend	Core	0	3	88	9	OH	117.0	105.7	59.6	4.6×10^{-8}
13	Earle, Navy	Core	3	22	62	13	OH	104.0	78.8	43.9	4.7×10^{-8}
14	Ambrose Channel	Grab	5	94	1	0	SP				3.4×10^{-4}
15	Gravesend Anchorage	Core	0	91	9	0	SP-SM				3.5×10^{-4}
16 Top	Bay Ridge Channel	Core	0	15	71	14	OH	155.6	107.4	63.9	7.4×10^{-8}
16 Btm	Bay Ridge Channel	Core	16	83	1	0	SP				
17A	Red Hook Channel	Core	3	36	58	3	OH	83.5	64.2	28.3	4.1×10^{-7}
17BCD	Red Hook Channel	Core	3	25	69	3	OH	95.5	63.2	31.1	7.9×10^{-7}
17E	Red Hook Channel	Grab	1	39	57	3	OH	117.3	80.2	44.9	2.8×10^{-6}
18	Buttermilk Channel	Grab	37	59	4	0	SP				3.2×10^{-5}
19A	40 Foot Channel	Core	7	60	26	7	SC	72.9	44.6	19.3	9.6×10^{-8}
19B	40 Foot Channel	Core	5	62	31	2	SC	70.3	45.5	18.5	1.5×10^{-6}
19C	40 Foot Channel	Core	2	23	59	16	OL	74.5	48.4	19.2	5.8×10^{-6}
20A	Newtown Creek (Mouth	Core	1	19	76	4	OH	96.9	67.6	32.0	7.6×20^{-6}
20B	of Dutch Kills)	Core	1	20	75	4	OH	72.2	72.9	38.9	5.2×10^{-8}
20C	Newtown Creek	Core	1	32	64	3	OL	93.6	49.2	21.8	2.6×10^{-6}
21	PA-NYNJ Terminals	Core	1	2	85	12	OH	159.4	105.3	61.2	2.7×10^{-8}
22	59th St. Sanitation Pier	Core	0	15	78	7	OH	95.2	74.6	33.5	3.4×10^{-6}
23	Edgewater-Weehawken, NJ	Core	0	6	70	24	OH	104.5	85.4	45.9	3.7×10^{-8}

Note: (1) Unified Soils Classification

(TABLE 3-10 Ref. 1)

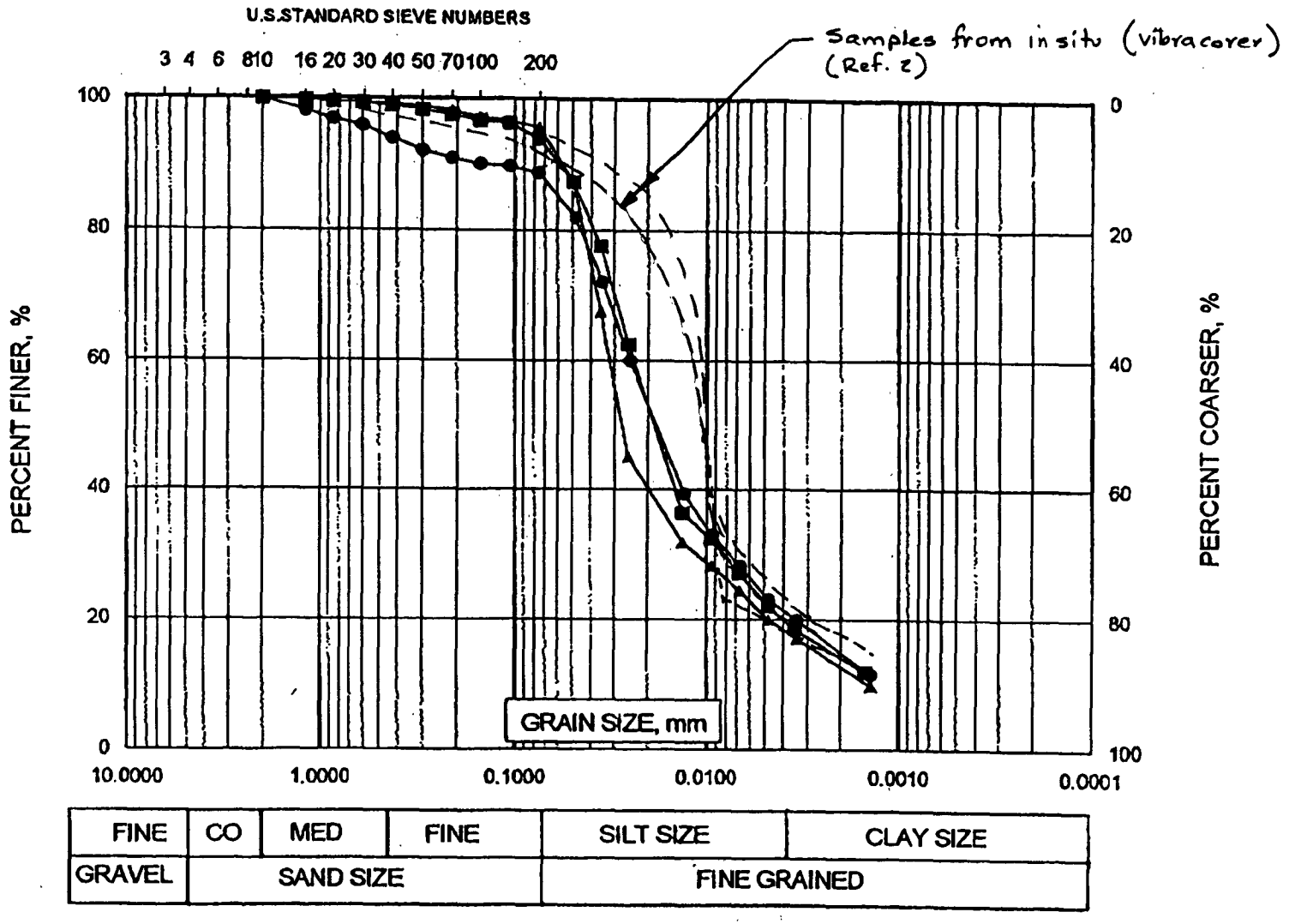
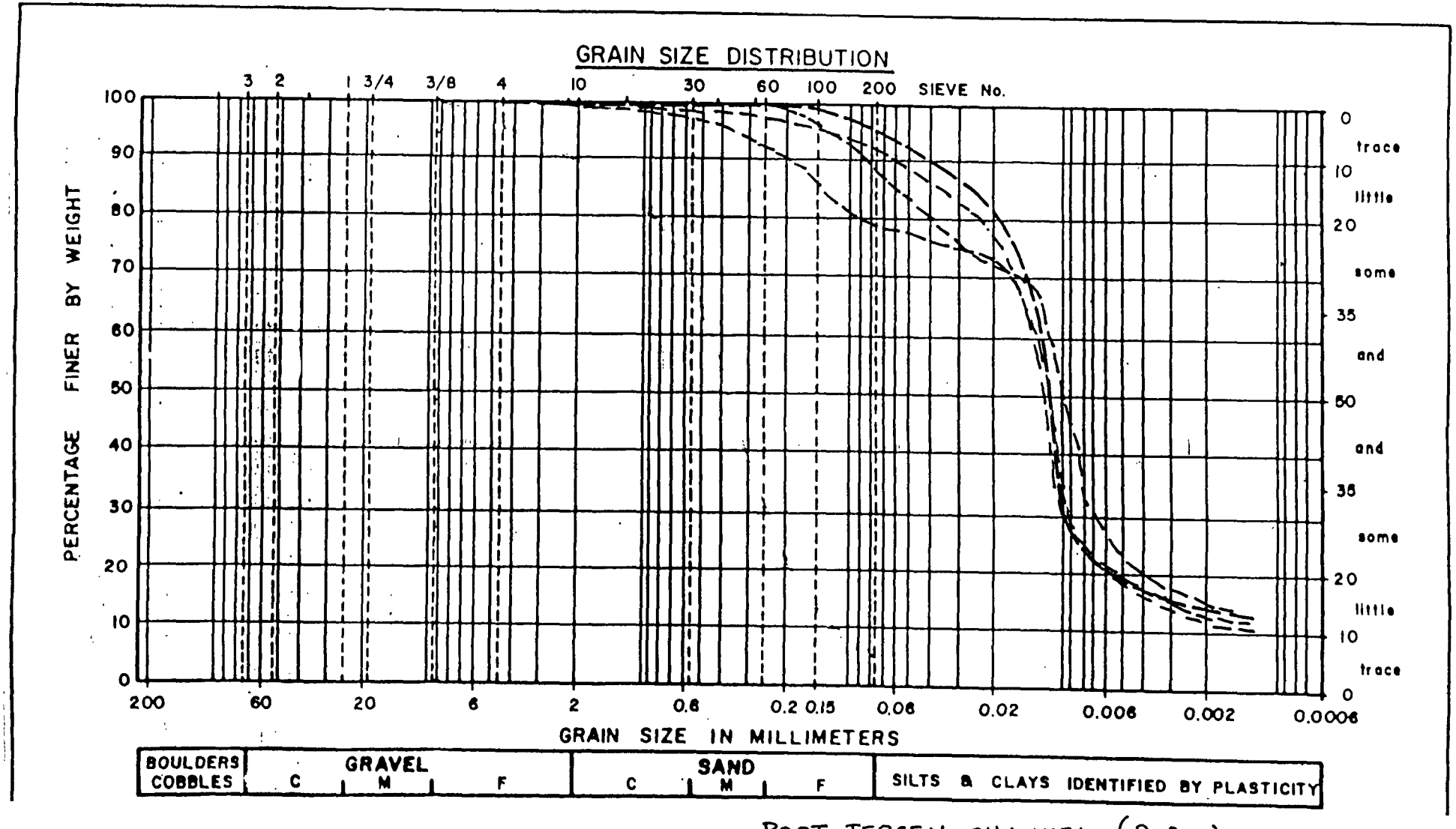


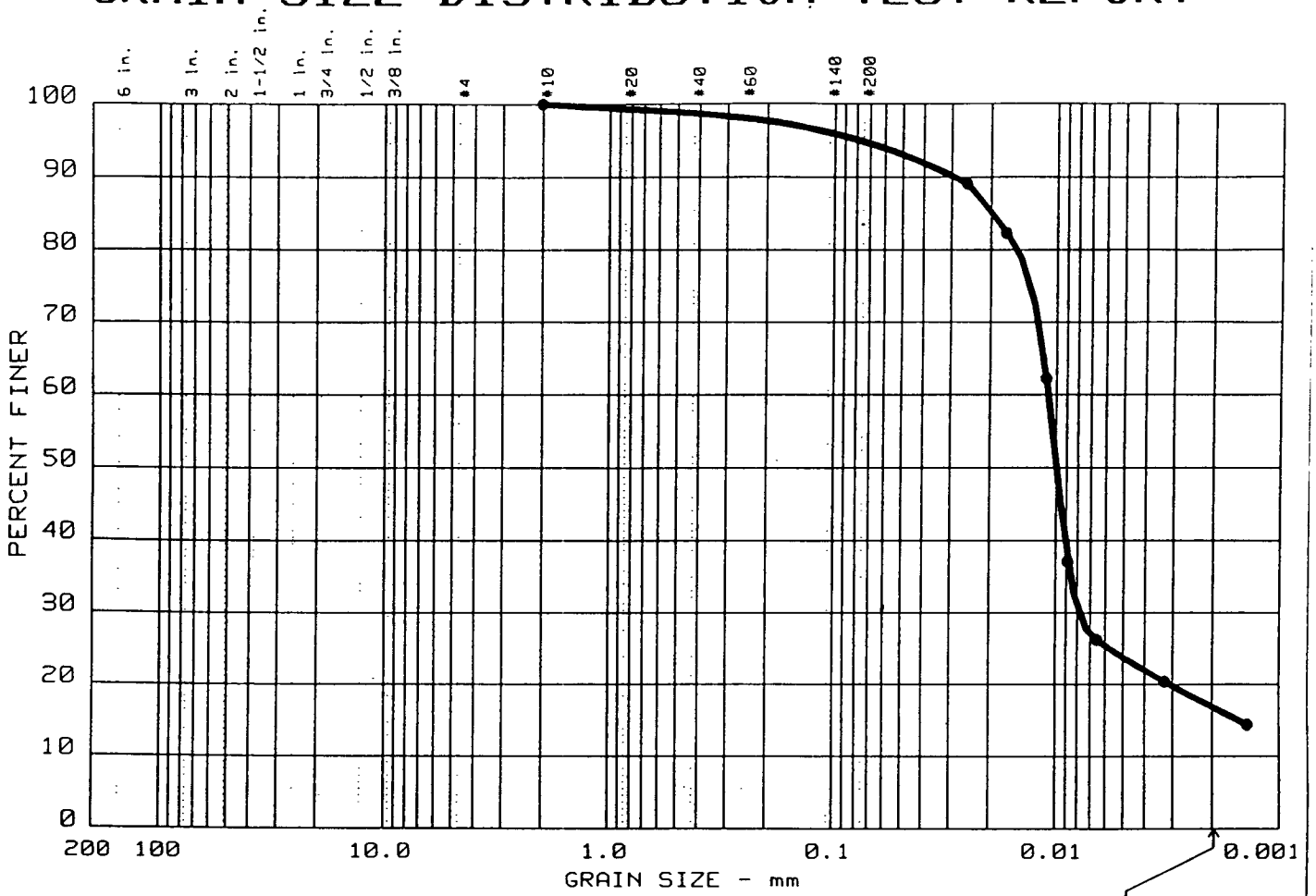
Figure . Grain size distribution of New York Harbor Soil (Samples from inside geotextile container)
(BROOKLYN)

(Ref. 8)



PORT JERSEY CHANNEL (Ref 10)

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	5.2	77.9	16.9

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	134.4	71.7			0.01	0.008	0.0015			

MATERIAL DESCRIPTION	USCS	AASHTO
● gray Silt little Clay trace fine Sand		

Project No.: Lab File # 564
Project: BPAMT Dredging Materials
● Location: Vibro Core 730 / 731

Date: April 26, 1996

Remarks:

Tested by: T. Spero

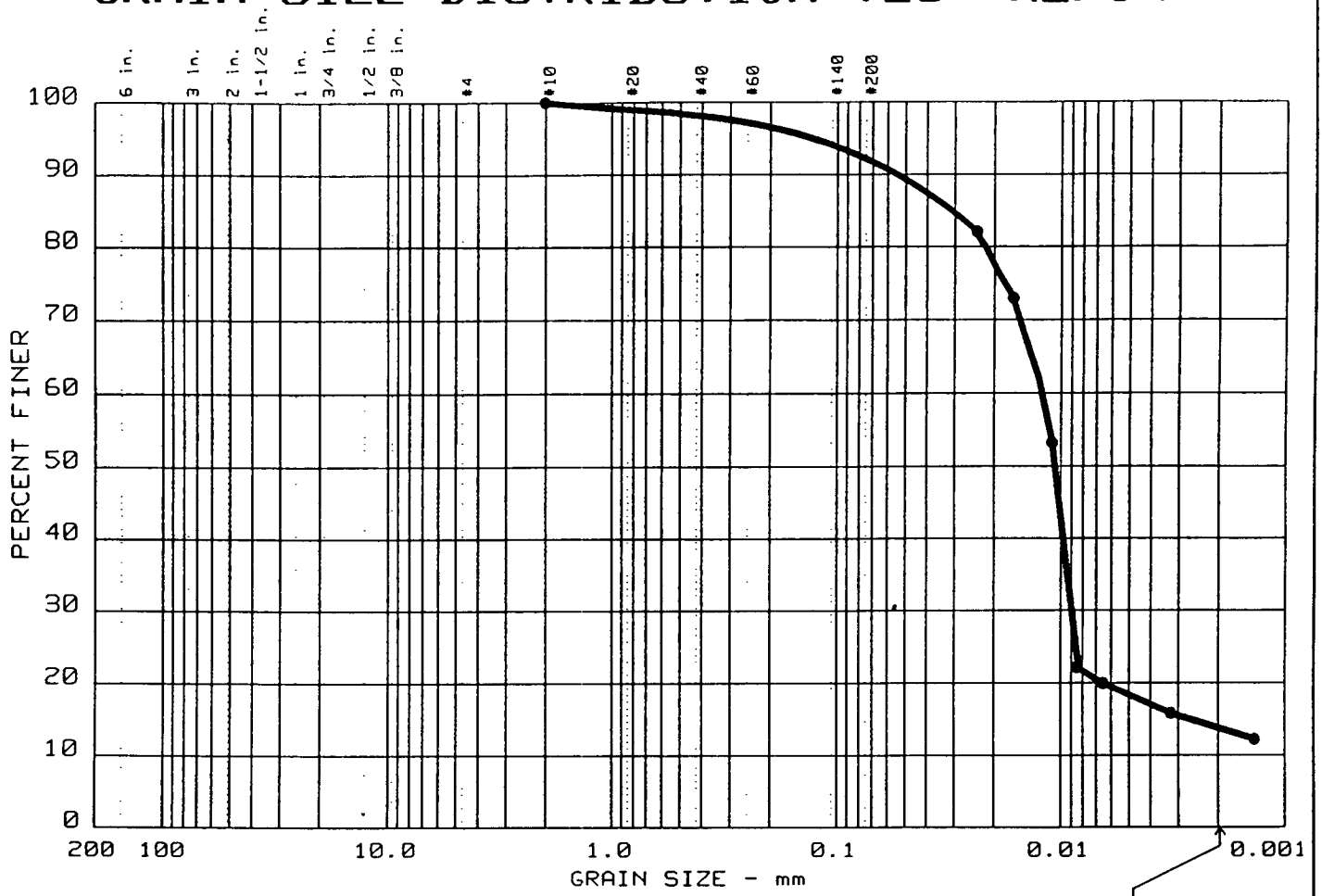
Reviewed by: DPC

GRAIN SIZE DISTRIBUTION TEST REPORT

THE PORT AUTHORITY OF N.Y. & N.J.

Figure No. _____

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	7.8	78.4	13.8

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	124.2	75.9			0.01	0.009	0.0026			

MATERIAL DESCRIPTION	USCS	AASHTO
● gray Silt little Clay trace fine Sand		

Project No.: Lab File # 564
Project: BPAMT Dredging Materials
● Location: Vibro Core 732 / 733

Date: April 26, 1996

Remarks:

Tested by: T. Spero

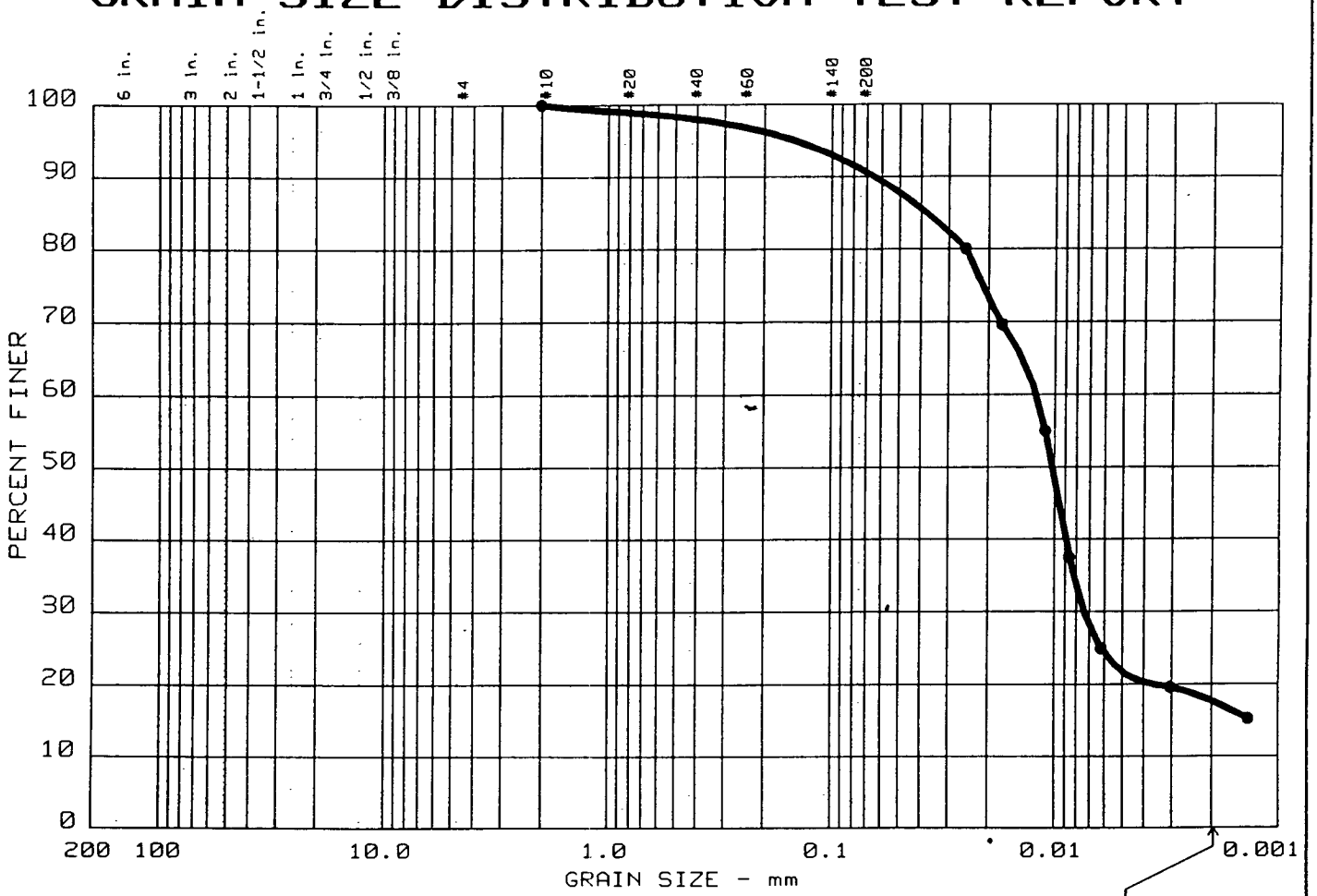
Reviewed by: DPC

GRAIN SIZE DISTRIBUTION TEST REPORT

THE PORT AUTHORITY OF N.Y. & N.J.

Figure No. _____

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	8.9	73.4	17.7

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	104.5	60.0			0.01	0.007				

MATERIAL DESCRIPTION	USCS	AASHTO
● gray Silt little Clay trace fine Sand		

Project No.: Lab File # 564
Project: PST Dredge Materials
● Location:

Date: May 6, 1996

Remarks:

Tested by: T. Spero

Reviewed by: DPC

GRAIN SIZE DISTRIBUTION TEST REPORT

THE PORT AUTHORITY OF N.Y. & N.J.

Figure No. _____

TABLE C-5
PANYNJ

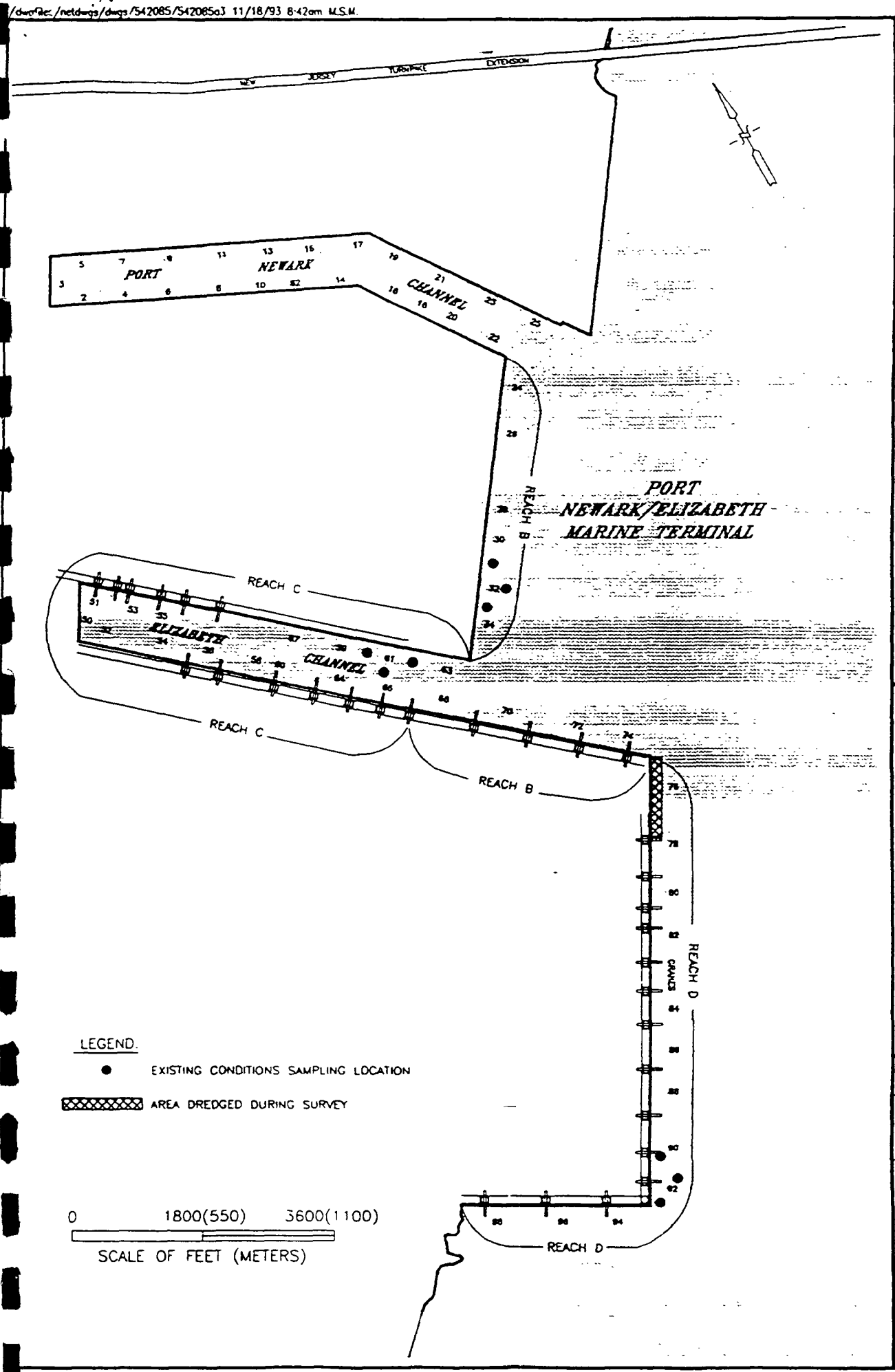
PARTICLE SIZE ANALYSIS OF SEDIMENT SAMPLES COLLECTED DURING BARGE SAMPLING (BERTHS 76-78) AND BENTHIC ORGANISM TISSUE SAMPLING (BERTH 74)

LOCATION*	% SAND	% SILT	% CLAY
Berths 76-78 No Overflow	0	44	56
Berths 76-78 Best Management Practice	0	51	49
Berths 76-78 Standard	0	51	49
Berth 74 Location No. 1	8.7	43.8	47.5
Berth 74 Location No. 2	5.3	62.3	32.5
Berth 74 Location No. 3	2.4	55.6	42.0

PORT NEWARK/PORT ELIZABETH (Ref. 9)

* See next page.

/dwgfile:/netdwgs/dwgs/542085/542085a3 11/18/93 8:42am M.S.M.



DRAWN BY: J.R. DANZA	DATE: 9/13/93		
CHECKED BY:	DATE: 11/18/93		
ENGINEER:	DATE: 11/18/93		
APPROVED BY:	DATE:		
SCALE: 1"=1800'	PROJECT No. 542085		
DRAWING No. 542085-A3	REV		

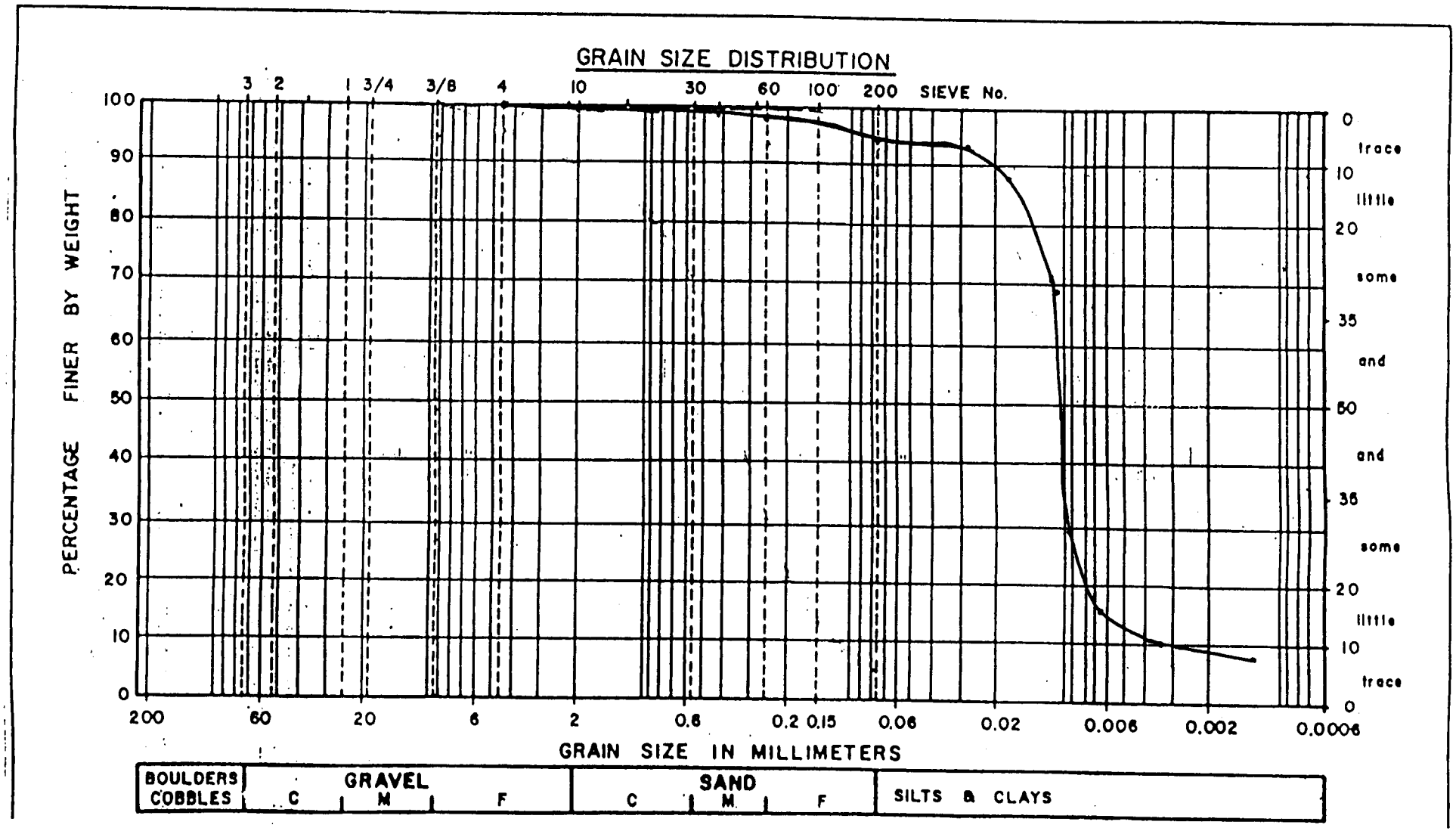
FIGURE 1
PORT NEWARK/ELIZABETH MARINE TERMINAL
Prepared For:
PORT AUTHORITY OF N.Y. & N.J.

INTERNATIONAL TECHNOLOGY CORPORATION
EDISON, NEW JERSEY

NO	DESCRIPTION	DATE	BY
-	-	-	-

REVISIONS

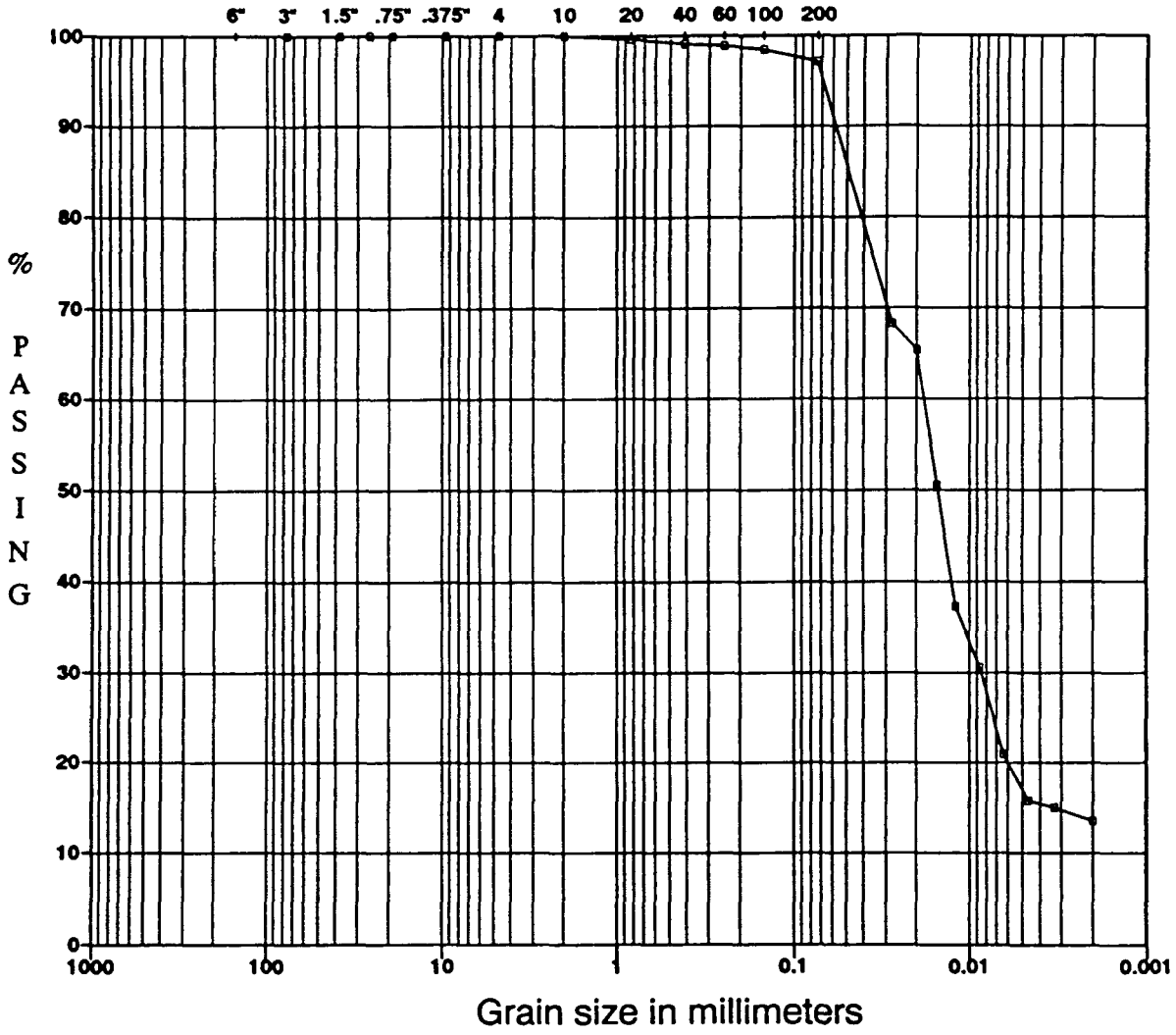
542085A3 09/13/93 11:44am J.R.D.



PORT NEWARK (Ref. 13)

PARTICLE SIZE DISTRIBUTION ASTM D-421 AND 422

US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-7	169.2				Black
	Date Tested:	5/31/95			Fines,
					trace sand
TECHNICIAN:	TK/RDD	DATE: 5/31/95			CHECKED: RDD REVIEWED: RMW

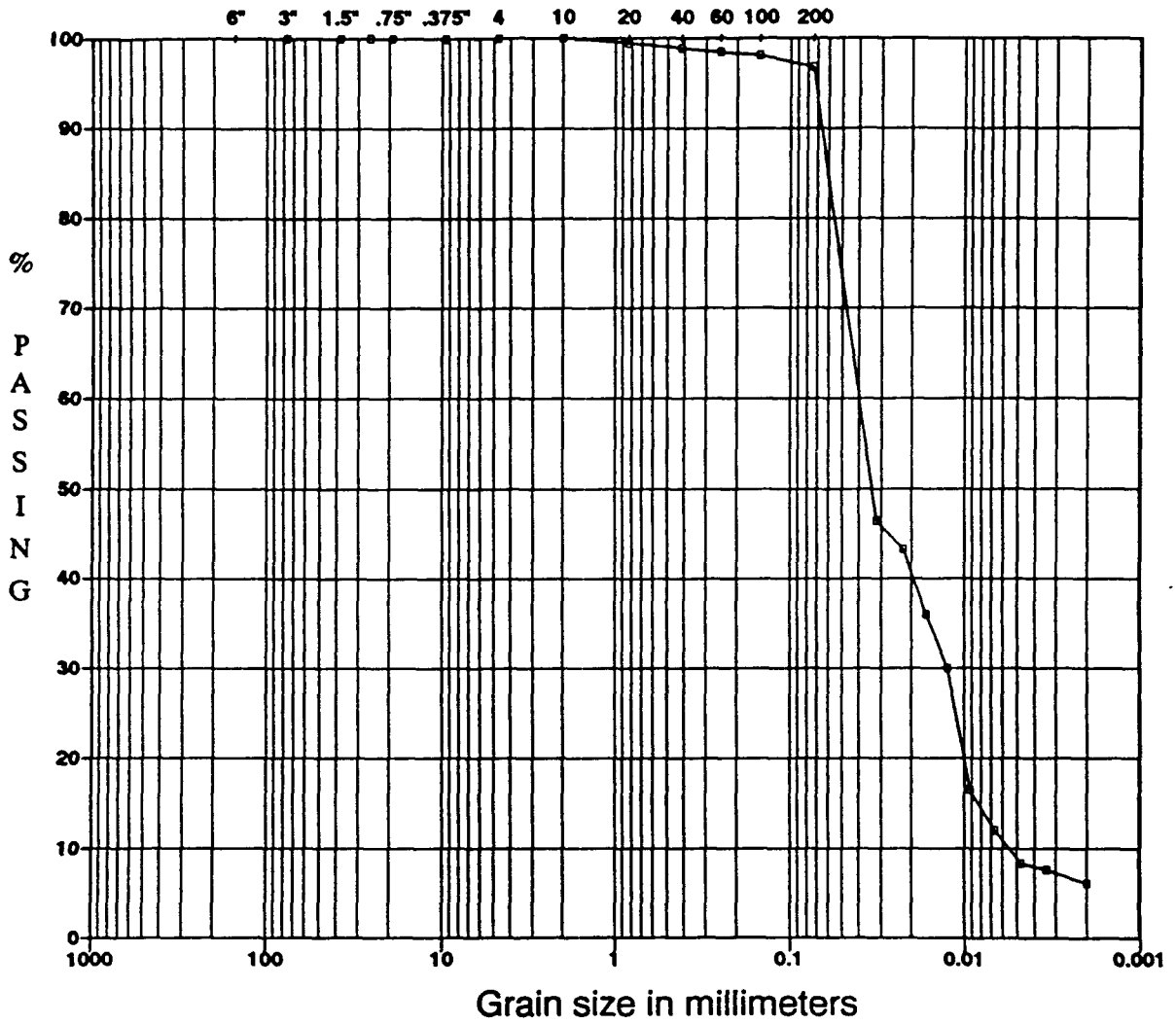
NAC/LAB GEOTECH/NJ
943-6221

GOLDER ASSOCIATES INC.
MT. LAUREL, NJ

HOWLAND HOOK (Reference 4)

PARTICLE SIZE DISTRIBUTION ASTM D-421 AND 422

US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-8	189.4				Black
	Date Tested:	5/31/95			Fines,
					trace sand
TECHNICIAN:	TK/RDD	DATE: 5/31/95			CHECKED: RDD REVIEWED: RMW

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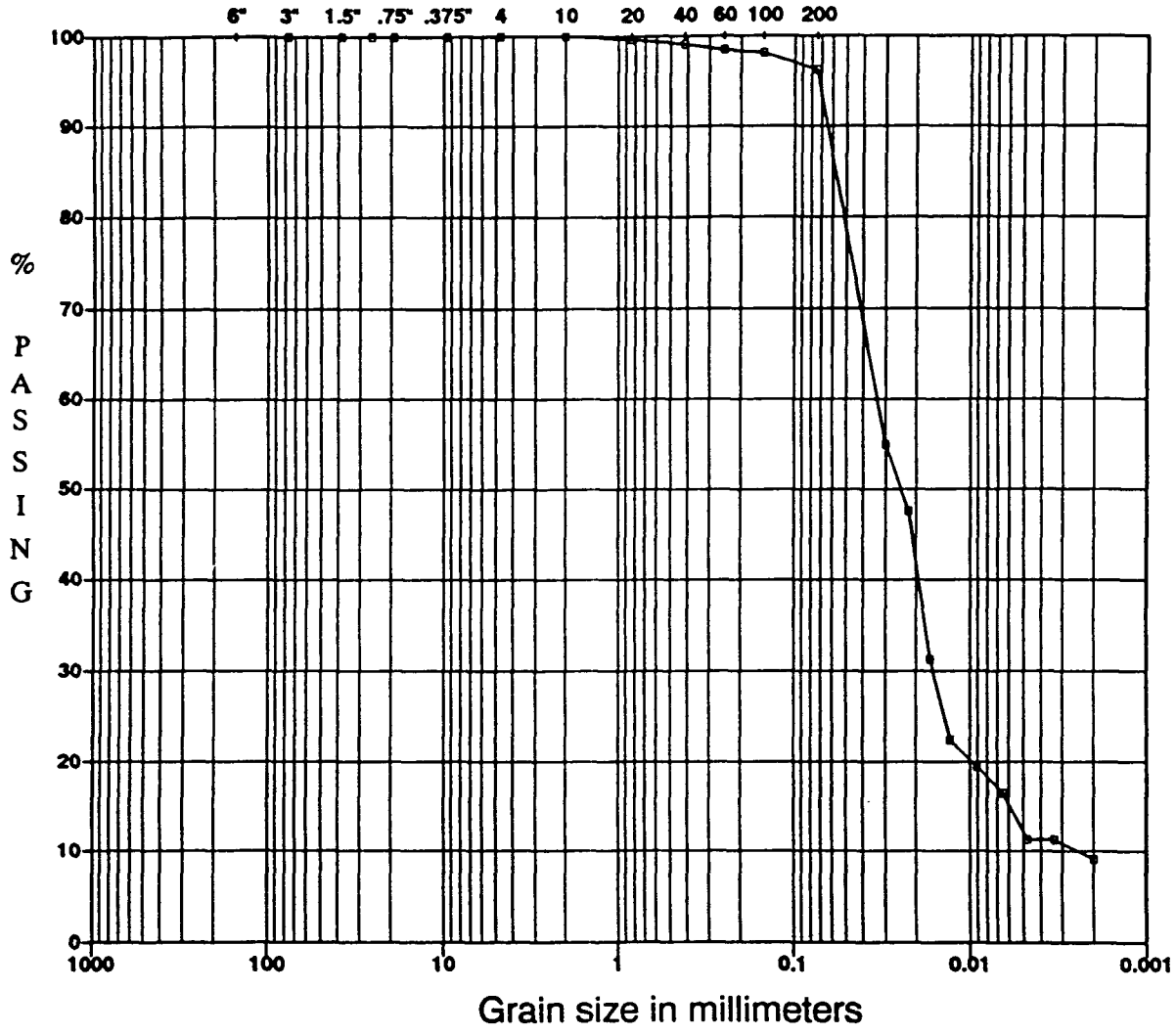
US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-9	162.5				Black Fines, trace sand
	Date Tested: 5/31/95				
TECHNICIAN: TK/RDD	DATE: 5/31/95				CHECKED: RDD REVIEWED: RMW

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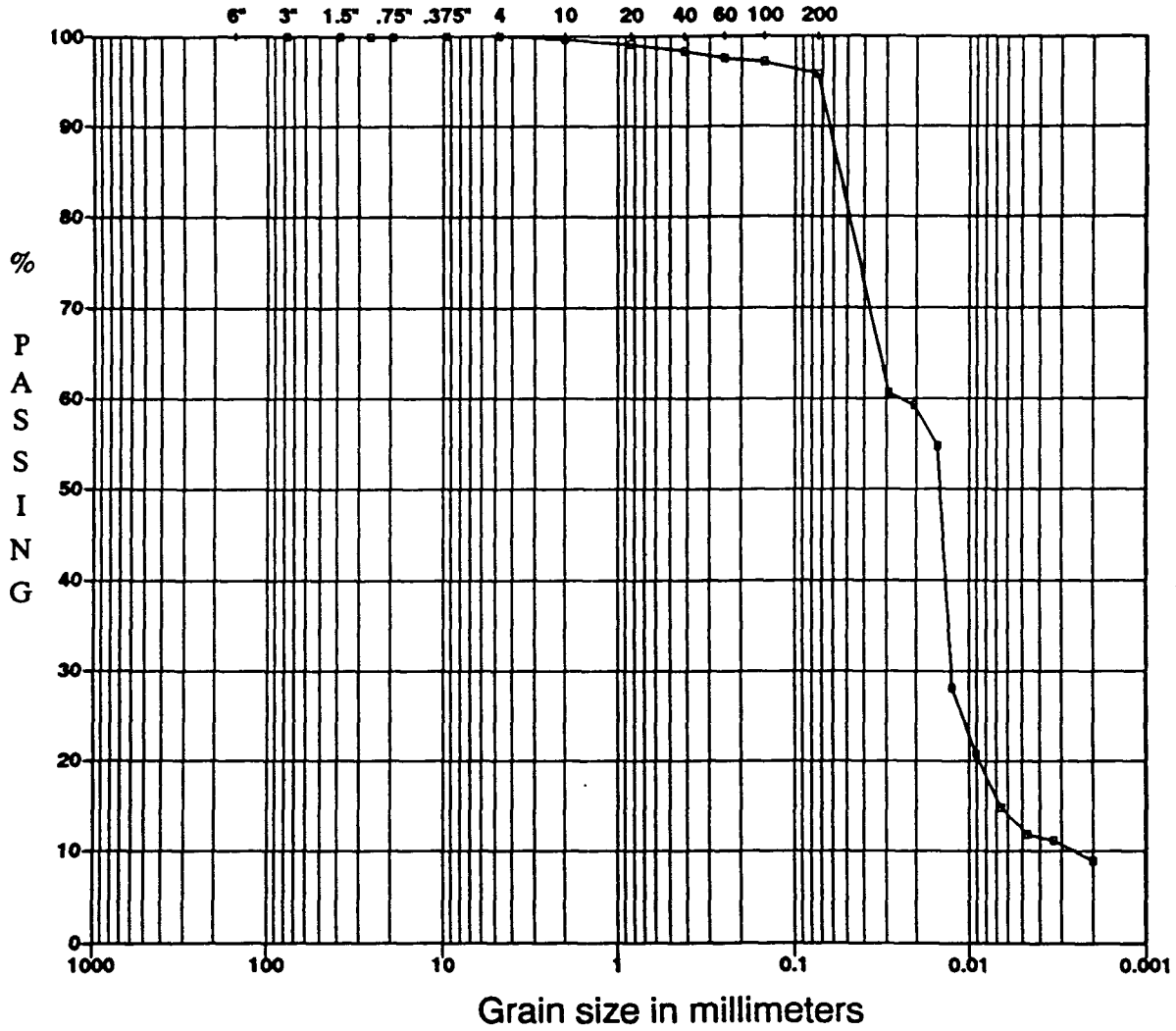
US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-10	170.9				Black
	Date Tested:	5/31/95			Fines,
					trace sand
TECHNICIAN:	TK/RDD	DATE: 5/31/95			CHECKED: RDD REVIEWED: RMW

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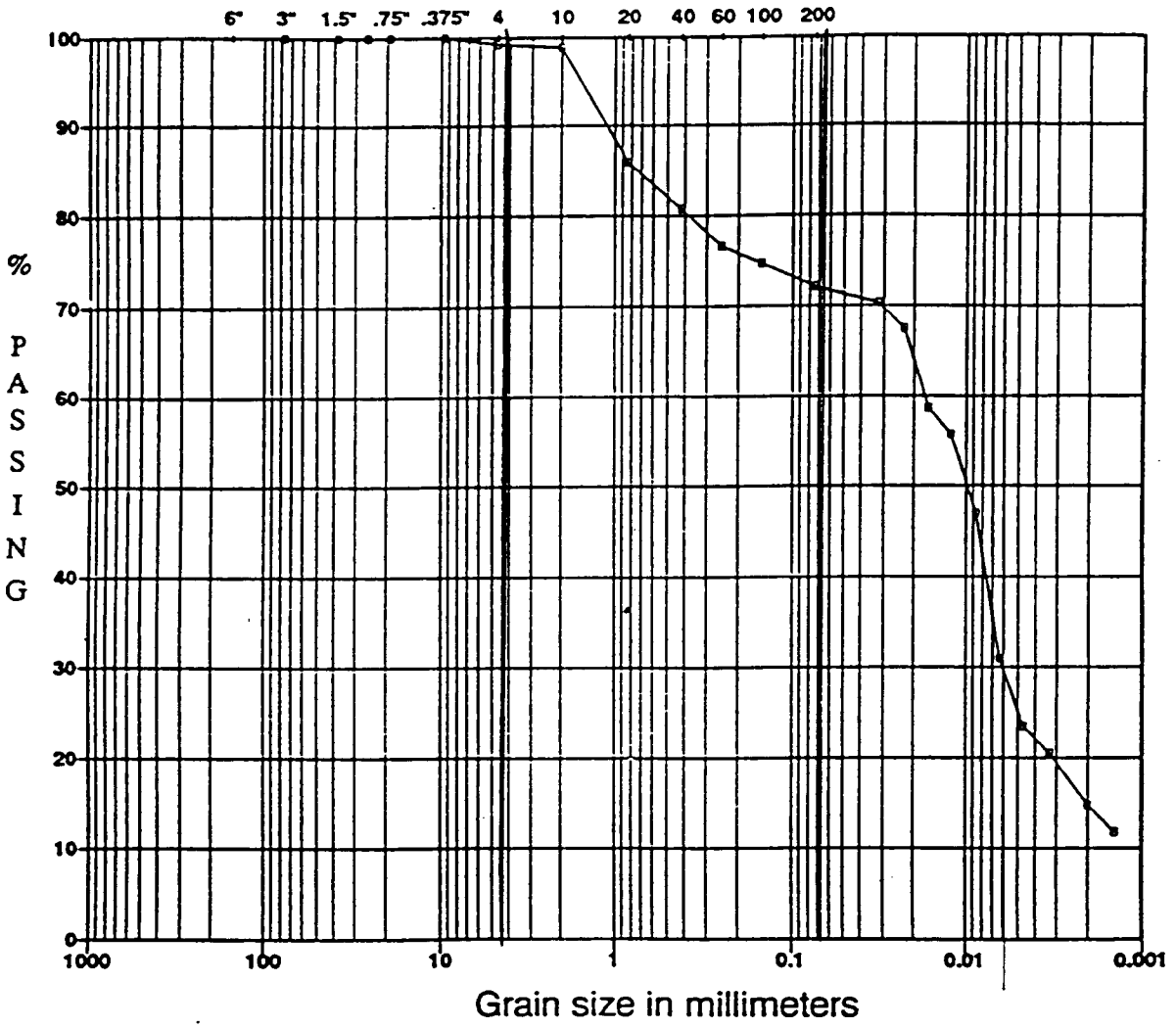
US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	Gs	DESCRIPTION
950199-2	134.6					Black FINES, some m sand, trace gravel
	Date Tested: 1/24/95					
TECHNICIAN: TK/RDD	DATE: 1/19/95		CHECKED: RDD			REVIEWED: RMW

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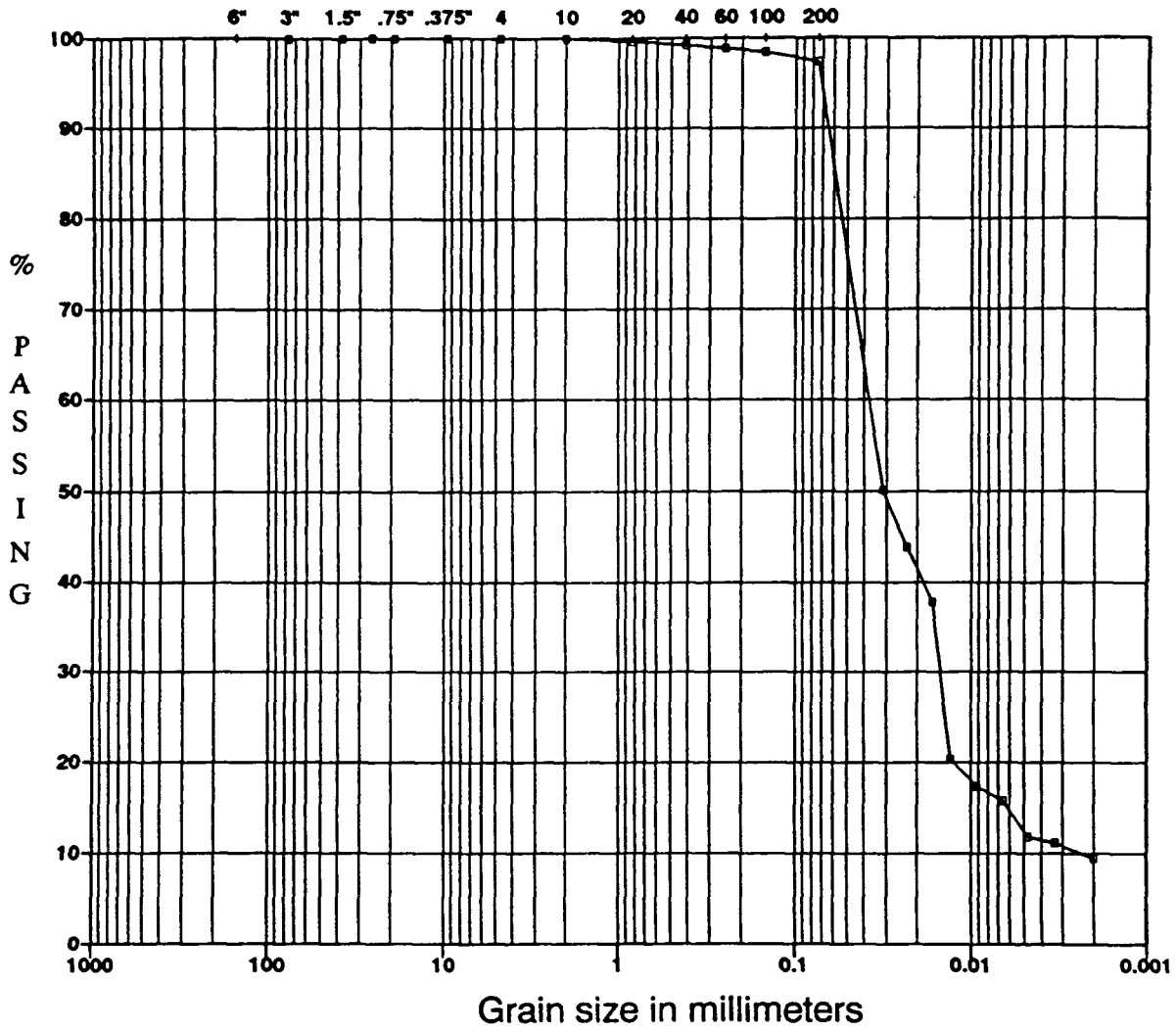
US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-1	177.9				Black
	Date Tested: 5/31/95				Fines,
					trace sand
TECHNICIAN: TK/RDD	DATE: 5/31/95				CHECKED: RDD REVIEWED: RMW

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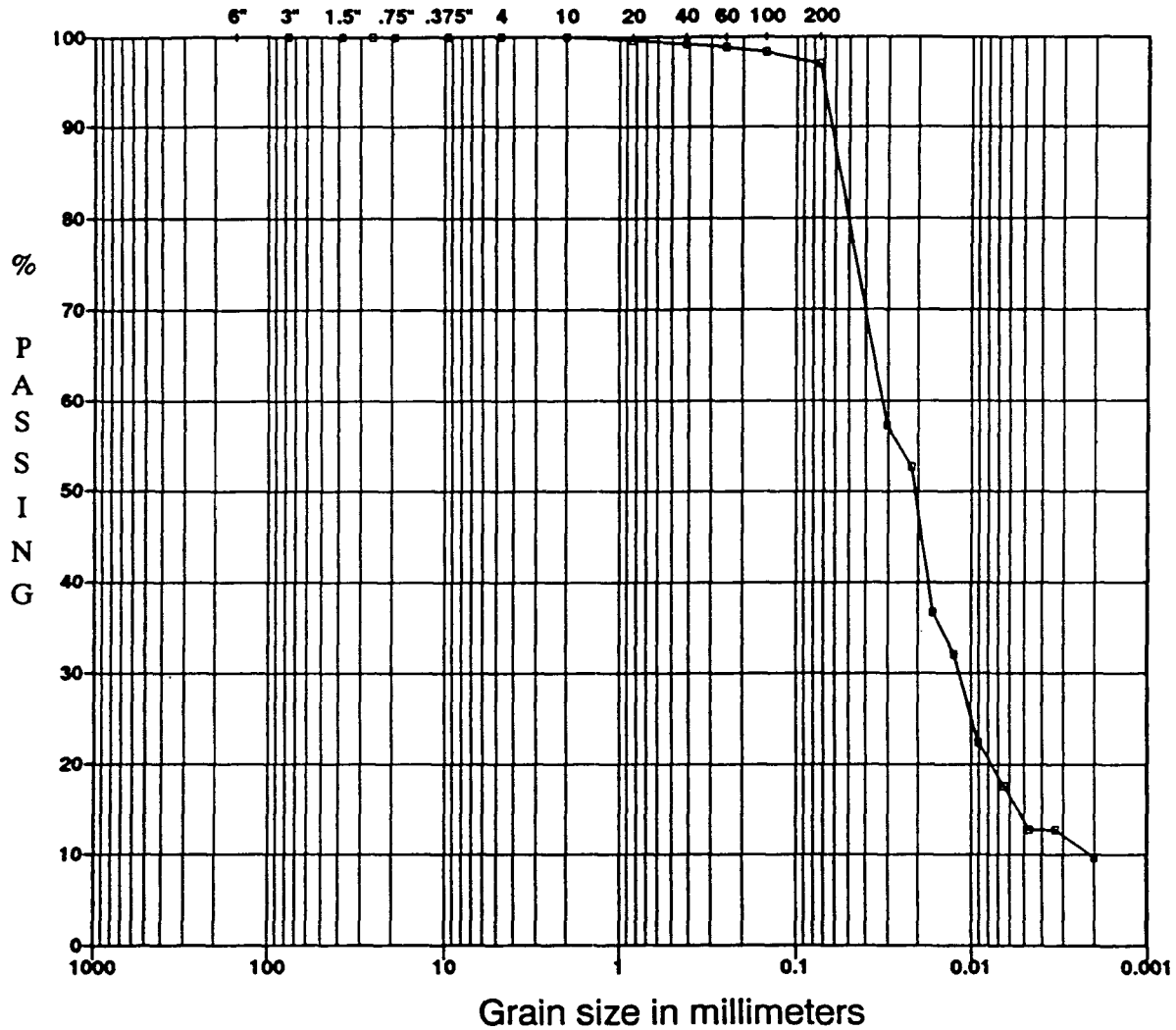

COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-2	161.4				Black
	Date Tested:	5/31/95			Fines,
					trace sand
TECHNICIAN:	TK/RDD	DATE: 5/31/95			CHECKED: RDD REVIEWED: RMW

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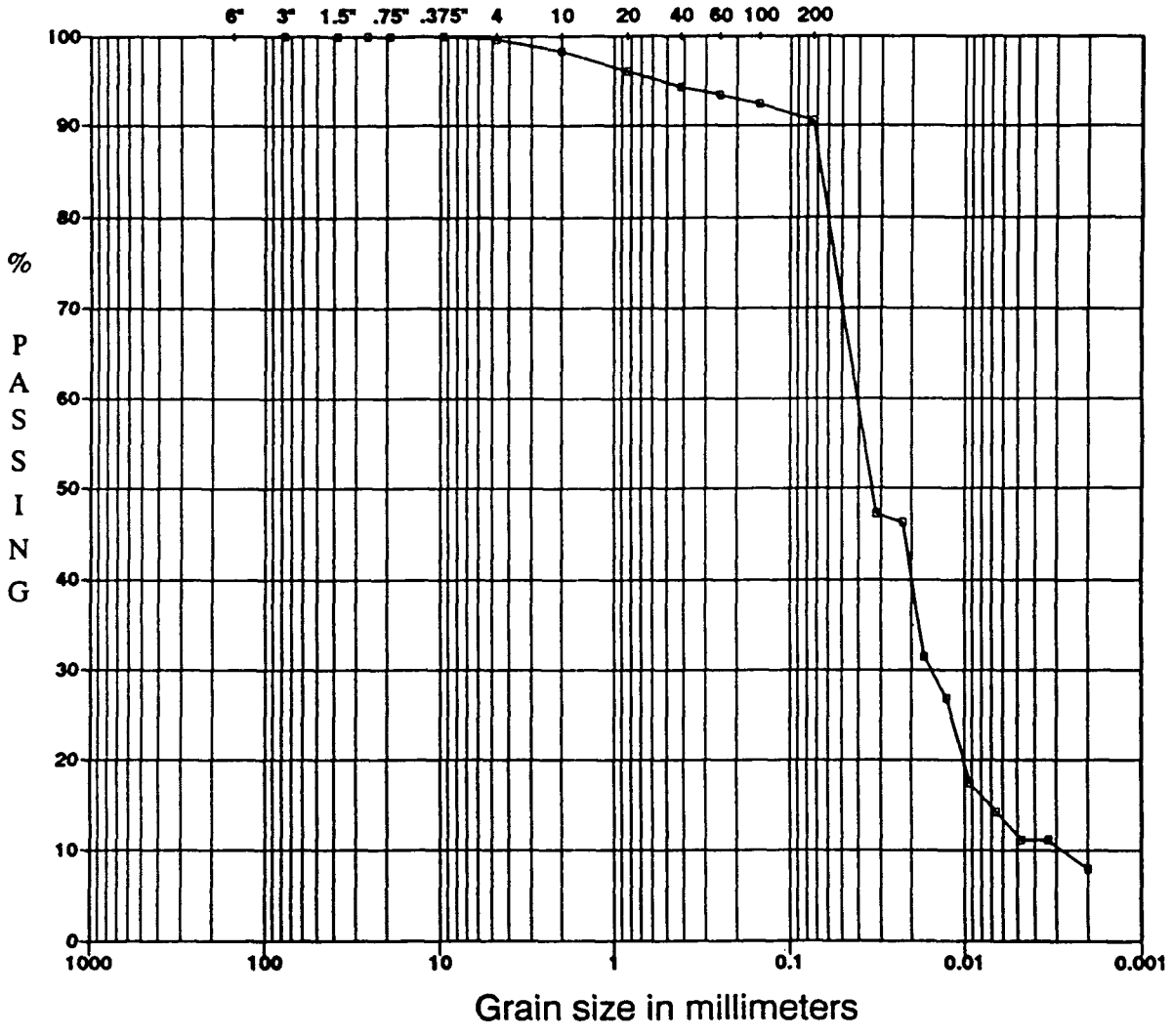
US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-3	151.3				Blackish brown Fines, little sand, trace gravel
	Date Tested:	5/31/95			
TECHNICIAN: TK/RDD	DATE: 5/31/95				CHECKED: RDD REVIEWED: RMW

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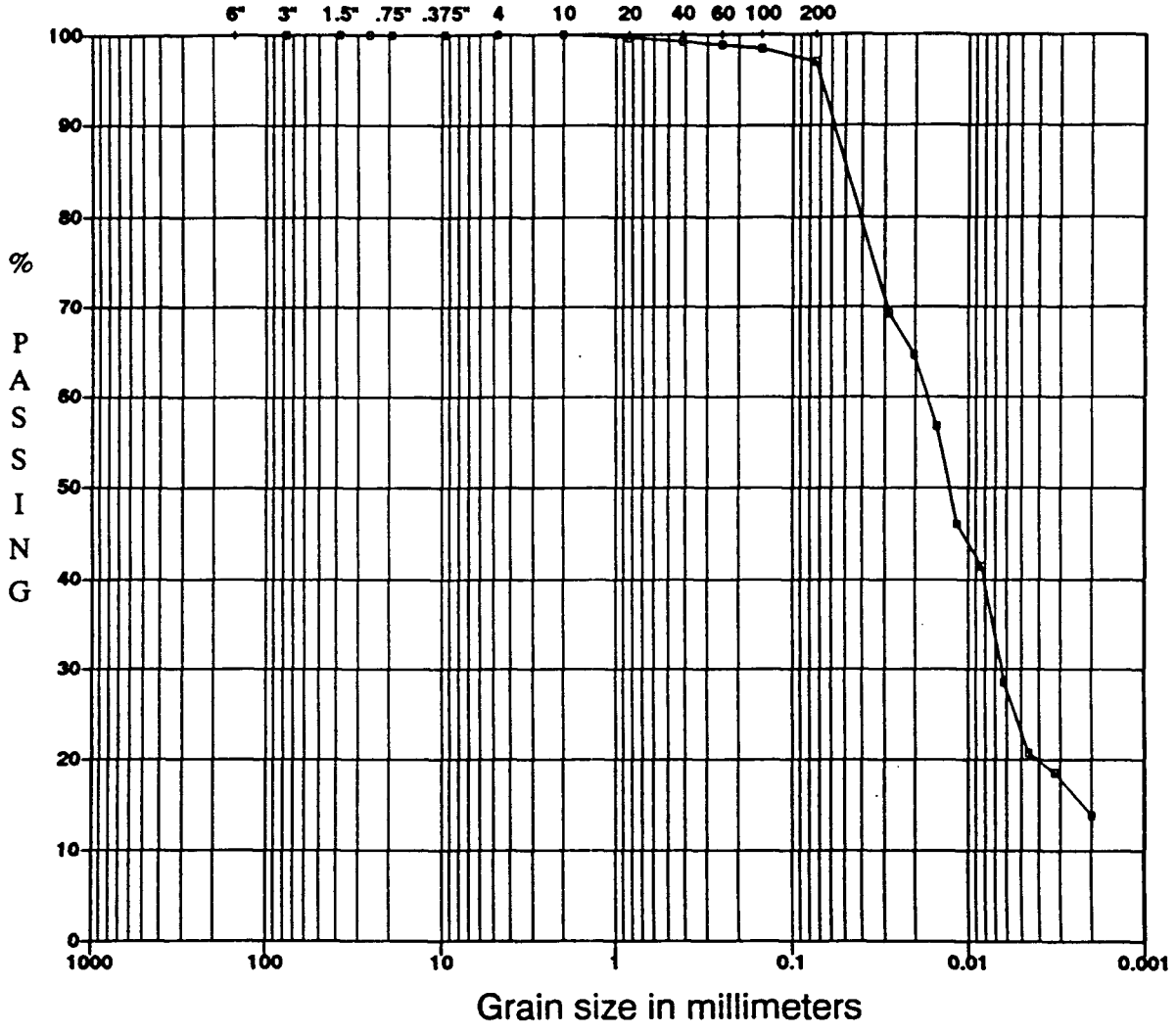

COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-4	154.4				Black Fines, trace sand
	Date Tested: 5/31/95				
TECHNICIAN: TK/RDD	DATE: 5/31/95				CHECKED: RDD REVIEWED: RMW

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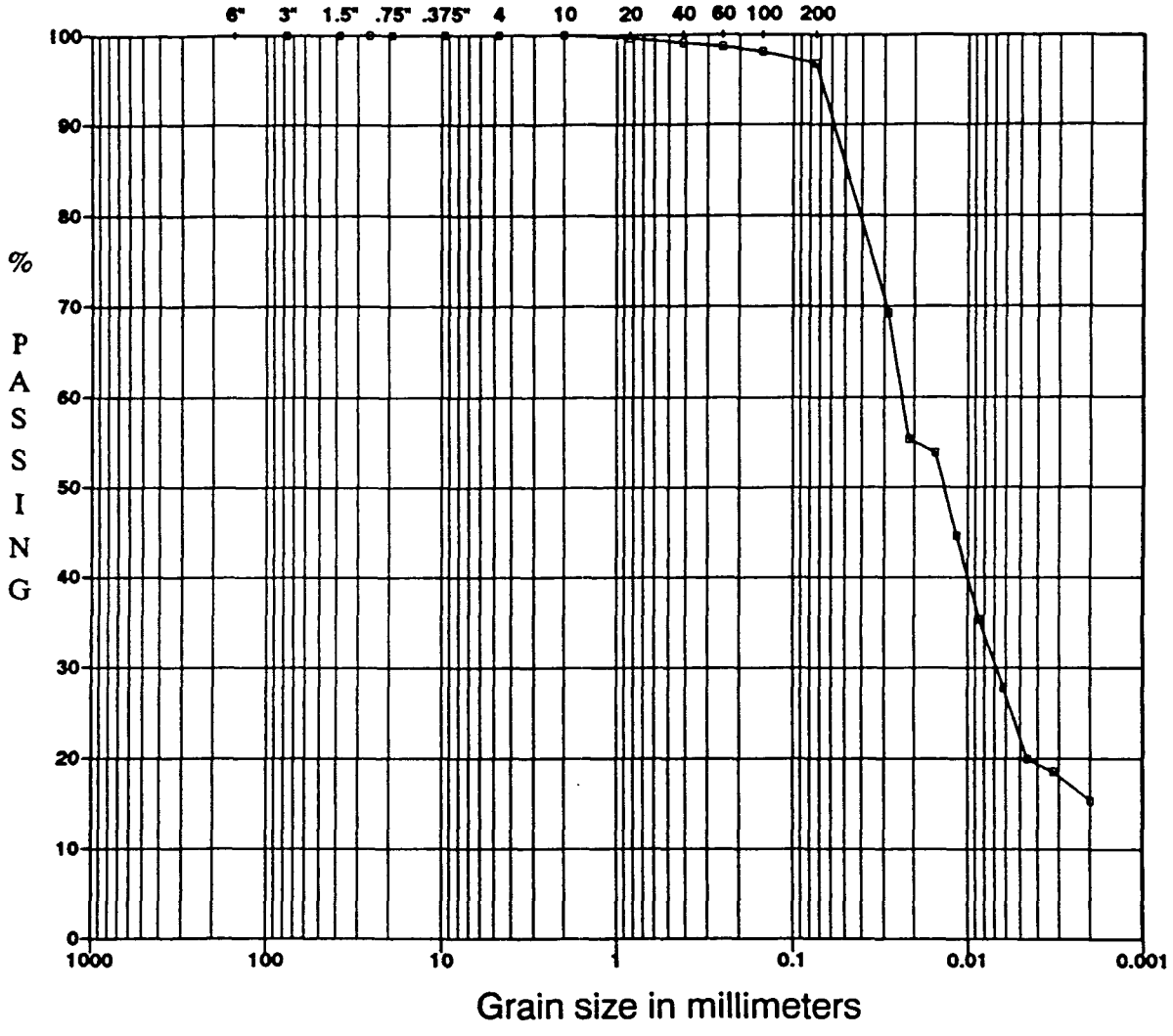

COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-5	162.0				Black Fines, trace sand
	Date Tested:	5/31/95			
TECHNICIAN:	TK/RDD	DATE: 5/31/95			CHECKED: RDD REVIEWED: RMW

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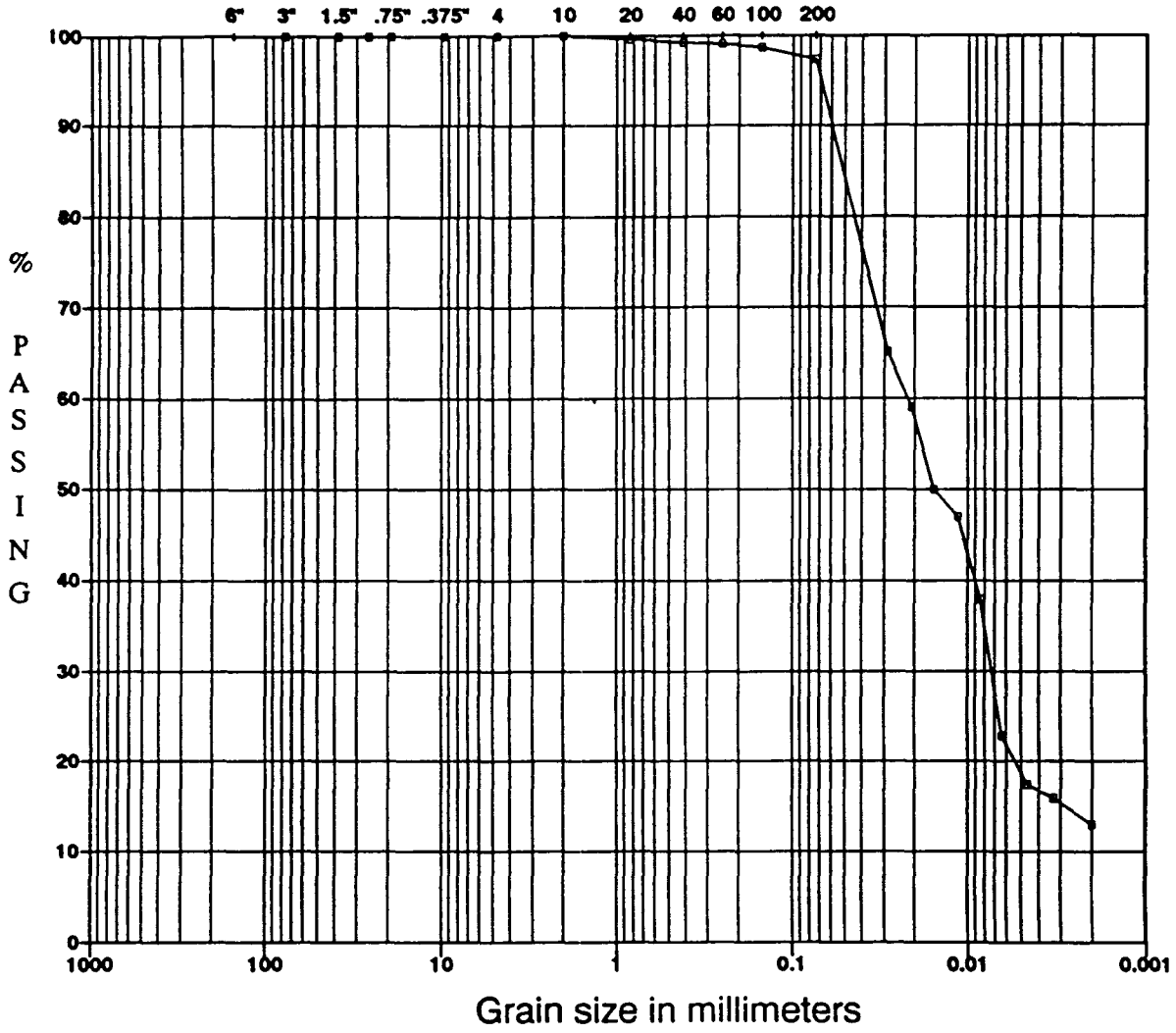

COBBLES	Coarse	Fine	Cor	Med	Fine	FINES (Silt and Clay)
	GRAVEL		SAND			

SAMPLE ID	W%	LL	PL	PI	DESCRIPTION
L951623-6	152.9				Black Fines, trace sand
	Date Tested: 5/31/95				
TECHNICIAN: TK/RDD	DATE: 5/31/95				CHECKED: RDD REVIEWED: RMW

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