D'APPOLONIA

CONSULTING ENGINEERS, INC.

December 18, 1980

Vigil Network Repository
Library
U.S. Geological Survey
Washington, DC 20242

Tranmittal of Data
For Vigil Network Respository
Tongue River Investigations

Dear Sirs:

Enclosed are data to be filed in the Vigil Network Repository. These data consist of surveyed cross-sections of streams, bed profiles, gully cross-sections, and grain size determinations for an area east of the Tongue River, downstream of Birney Day School, and upstream of Ashland, Montana.

D'Appolonia Consulting Engineers is pleased to contribute these data to the Vigil Network Repository.

Sincerely,

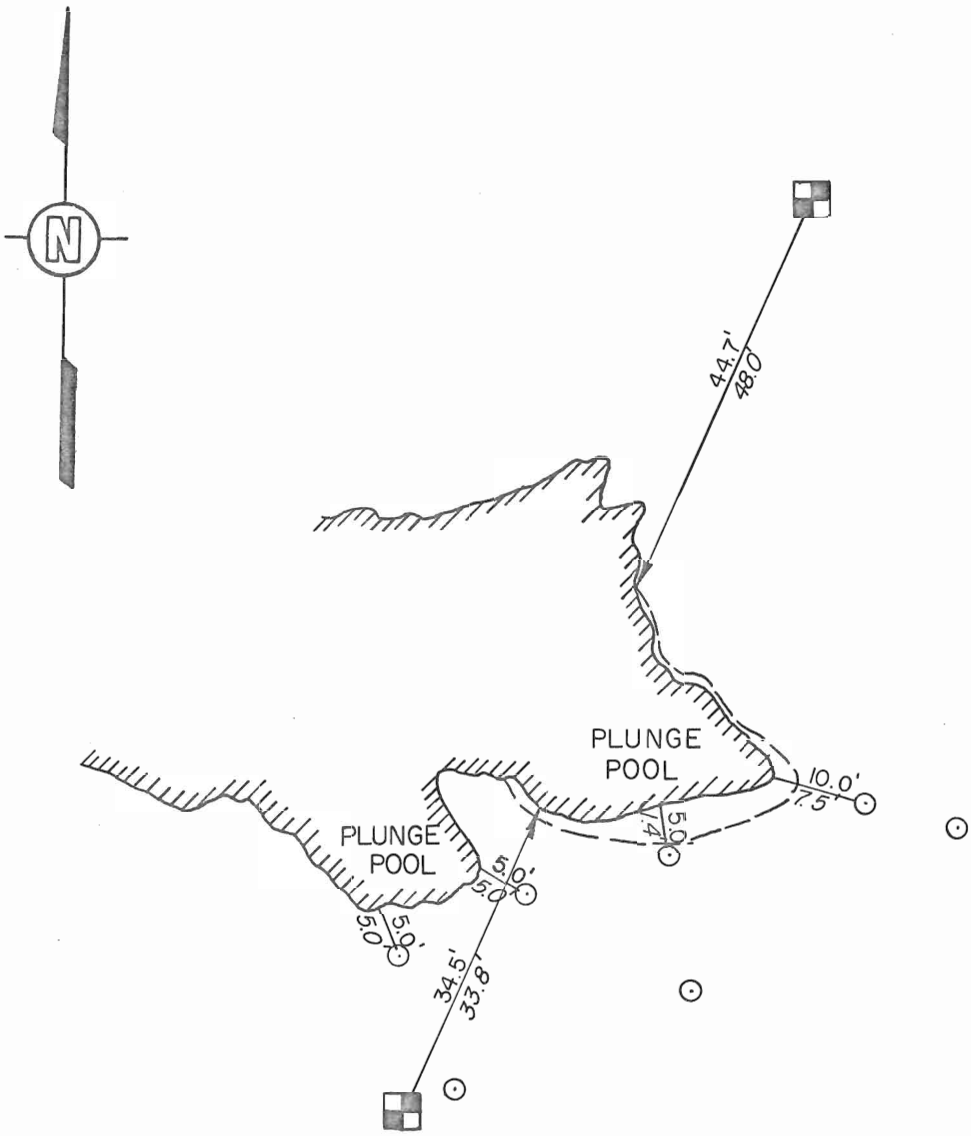
Don Pape
Assistant Project Engineer

DP:klg
Enclosures

7400 SOUTH ALTON COURT, ENGLEWOOD, CO 80112 TELEPHONE: 303/771-3464 TELEX: 45-4565

BECKLEY, WV CHESTERTON, IN CHICAGO, IL HOUSTON, TX LAGUNA NIGUEL, CA
PITTSBURGH, PA WILMINGTON, NC BRUSSELS, BELGIUM SEOUL, KOREA

DRAWN BY	S.L.T.	CHECKED BY	D. Pope	10-10-80	DRAWING NUMBER RM78-660-A36
	6-29-80	APPROVED BY	MJT	10-10-80	



LEGEND

- ⊙ HEADCUT MARKER PIN
- ■ CROSS SECTION ENDPOINT
- OUTLINE OF GULLY WALL, JUNE 1979
- OUTLINE OF GULLY WALL, APRIL 1980
- 10.0' MARKER PIN TO HEADCUT DISTANCE, JUNE 1979
- 7.5' MARKER PIN TO HEADCUT DISTANCE, APRIL 1980

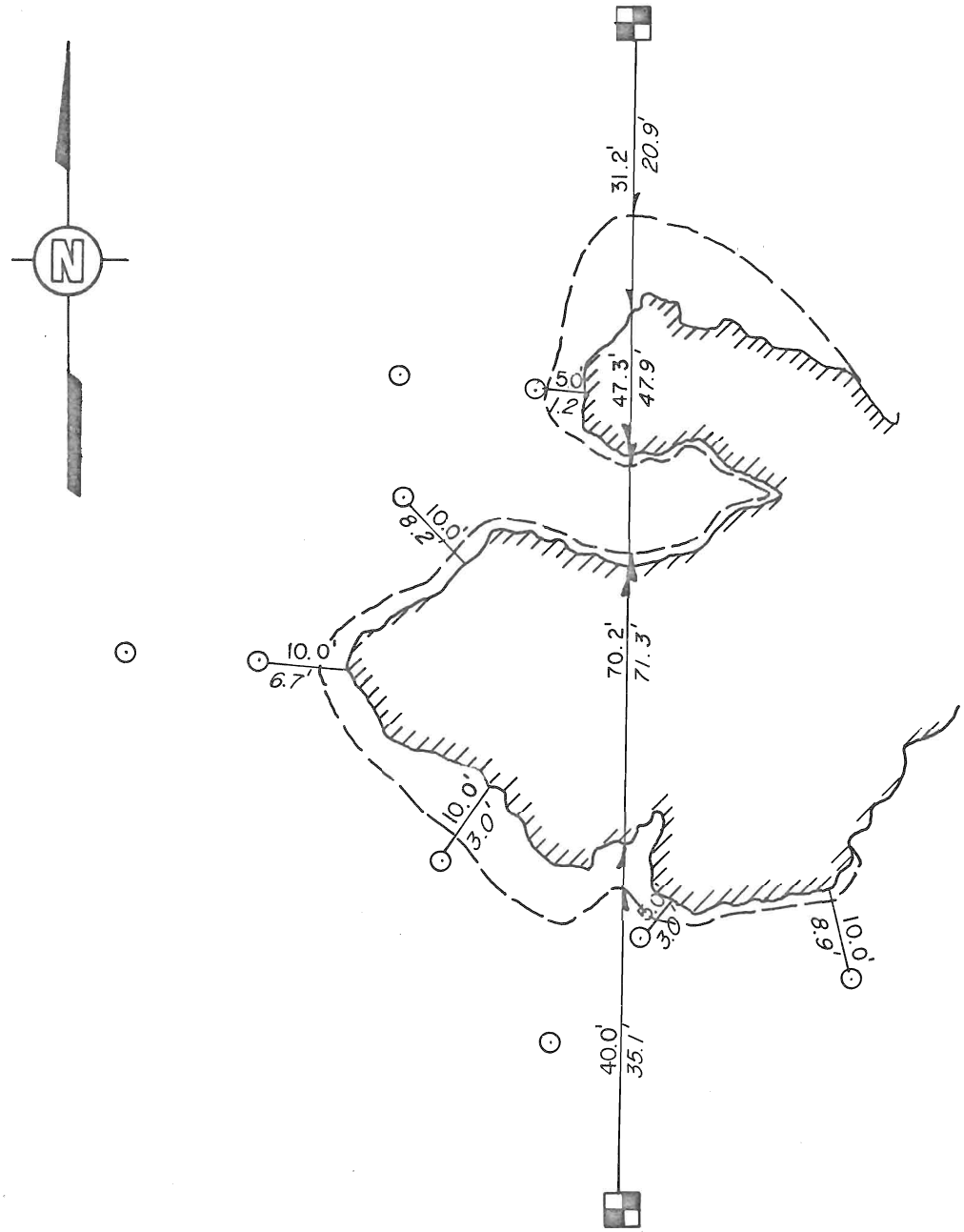
SCALE

20 0 20 40 FEET

FIGURE D-4

PLAN VIEW OF GULLY HEADCUT NO. 3

DRAWN BY	S.L.T.	CHECKED BY	D. Pape	10-10-80	DRAWING NUMBER RM78-660-A37
	6-29-80	APPROVED BY	MJT	10-10-80	



LEGEND

⊙ HEADCUT MARKER PIN

CROSS SECTION ENDPOINT

OUTLINE OF GULLY WALL, JUNE 1979

OUTLINE OF GULLY WALL, APRIL 1980

10.0' MARKER PIN TO HEADCUT DISTANCE, JUNE 1979

8.9' MARKER PIN TO HEADCUT DISTANCE, APRIL 1980

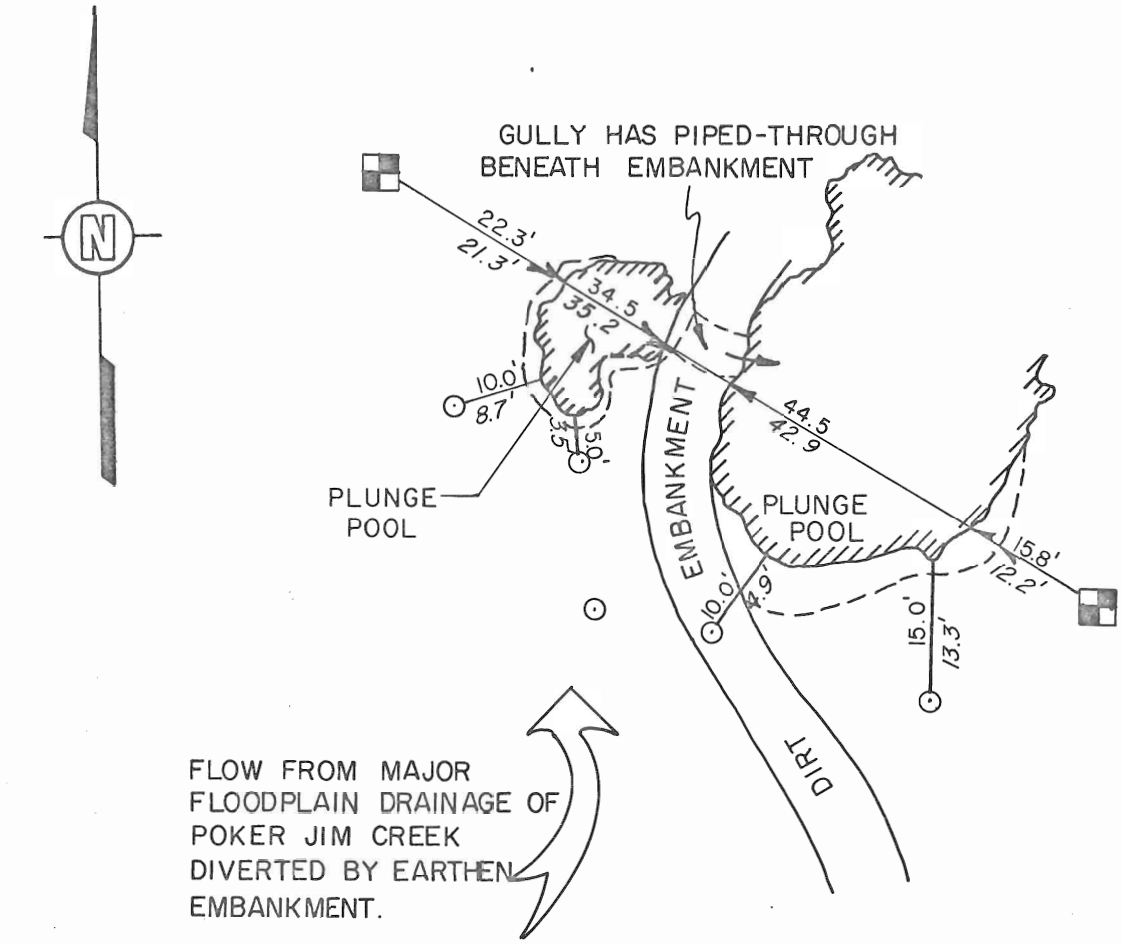
SCALE

20 0 20 40 FEET

FIGURE D-5

PLAN VIEW OF GULLY HEADCUT NO. 4

DRAWN BY	S.L.T.	CHECKED BY	D. Pope	10-10-80	DRAWING NUMBER RM78-660-A38
	6-29-80	APPROVED BY	MST	10-10-80	



LEGEND

⊙ HEADCUT MARKER PIN

CROSS SECTION ENDPOINT

OUTLINE OF GULLY WALL, JUNE 1979

OUTLINE OF GULLY WALL, APRIL 1980

10.0' MARKER PIN TO HEADCUT DISTANCE, JUNE 1979

8.7' MARKER PIN TO HEADCUT DISTANCE, APRIL 1980

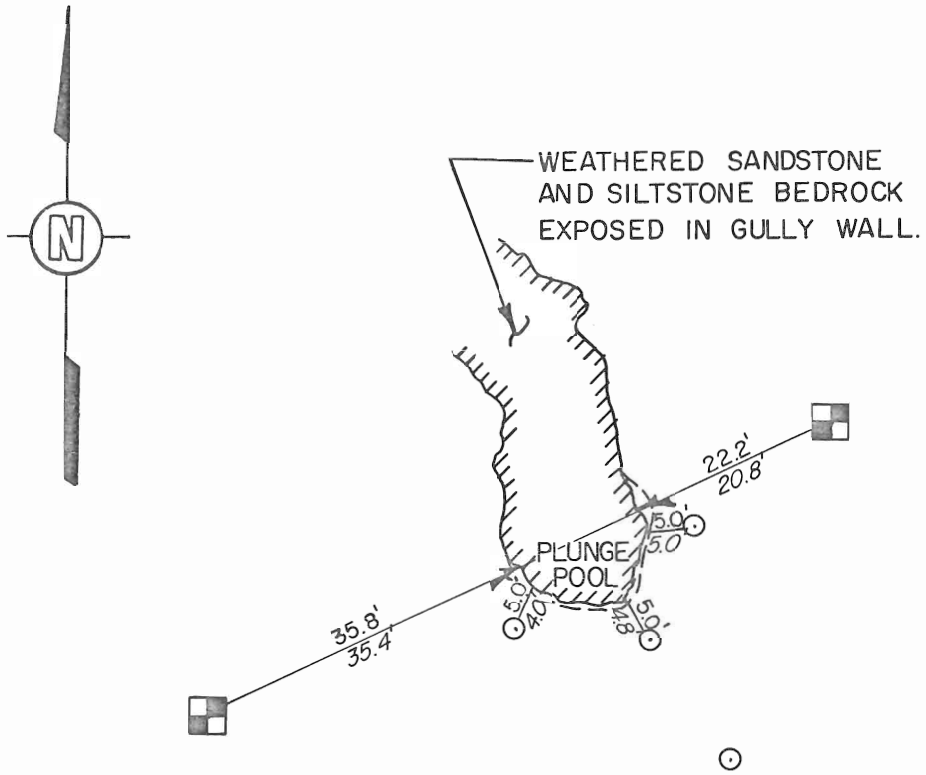
SCALE

20 0 20 40 FEET

FIGURE D-6

PLAN VIEW OF GULLY HEADCUT NO. 5

DRAWN BY	S. L. T.	CHECKED BY	D. Pape	10-10-80	DRAWING NUMBER RM78-660-A39
	6-29-80	APPROVED BY	MST	10-16-80	



NOTE:
ABUNDANT TONGUE RIVER GRAVELS PRESENT ON HIGHEST GEOMORPHIC SURFACE ON EITHER SIDE OF GULLY ABOVE FLOODPLAIN.

LEGEND

⊙ HEADCUT MARKER PIN

CROSS SECTION ENDPOINT

OUTLINE OF GULLY WALL, JUNE 1979

OUTLINE OF GULLY WALL, APRIL 1980

5.0' MARKER PIN TO HEADCUT DISTANCE, JUNE 1979

4.8' MARKER PIN TO HEADCUT DISTANCE, APRIL 1980

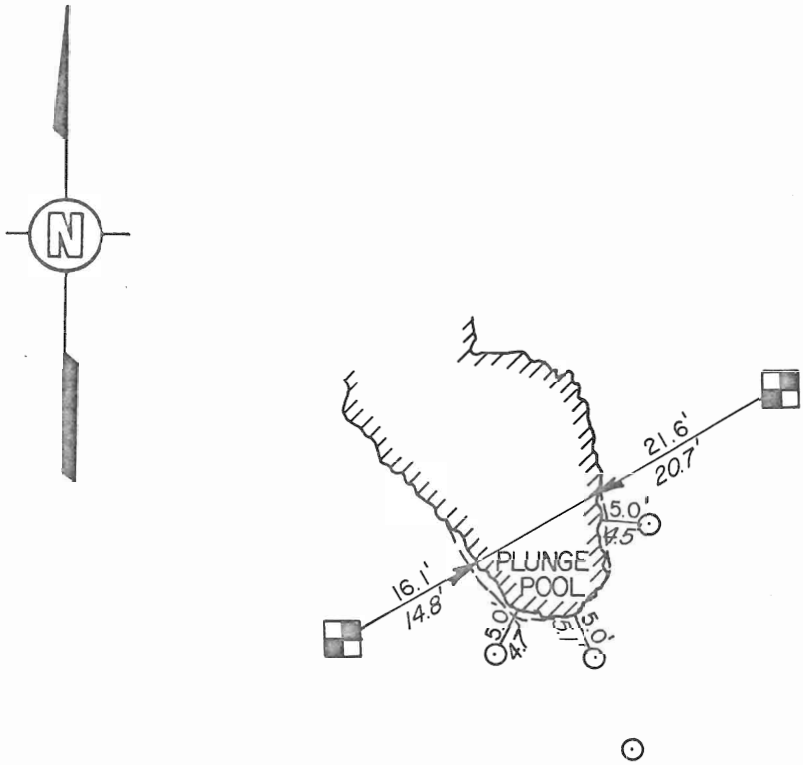
SCALE

20 0 20 40 FEET

FIGURE D-7

PLAN VIEW OF GULLY HEADCUT NO. 6

DRAWN BY	S.L.T.	CHECKED BY	D. Pape	10-10-80	DRAWING NUMBER RM78-660-A40
	6-29-80	APPROVED BY	N.J.T.	10-10-80	



LEGEND

- ⊙ HEADCUT MARKER PIN
- ▣ CROSS SECTION ENDPOINT
- OUTLINE OF GULLY WALL, JUNE 1979
- OUTLINE OF GULLY WALL, APRIL 1980
- 5.0' MARKER PIN TO HEADCUT DISTANCE, JUNE 1979
- 4.5' MARKER PIN TO HEADCUT DISTANCE, APRIL 1980

SCALE

20 0 20 40 FEET

FIGURE D-8

PLAN VIEW OF GULLY HEADCUT NO. 7

SUPPLEMENT D1

SURVEYED CROSS SECTIONS AND PROFILES IN THE MONTCO PROJECT AREA

LOCATION	VALLEY CROSS SECTION	CHANNEL CROSS SECTION	PROFILE	PAGE
King Creek	A-A'*	K-K'*		
	B-B'*	L-L'*		
	C-C'*	M-M'*		
	D-D'*	N-N'*		
	E-E'*			
Cedar Creek	A-A'			D1-3
	B-B'			
	C-C'			
	D-D'			
	E-E'*			
Dry Creek	A-A'			D1-3
	B-B'*			
O'Dell Creek	A-A'*	K-K'*		
	B-B'*			
	C-C'*			
	D-D'*			
	E-E'*			
Gate Creek	D-D'*	K-K'*		
	E-E'*	L-L'*		
	A-A'*			
	B-B'*			
	C-C'*			
Poker Teechee Creek	A-A'	K-K'		D1-3
	B-B'*	L-L'		and
	C-C'	M-M'		D1-4
		N-N'		
		O-O'		
		P-P'		
Poker Jim Creek	A-A'	K-K'		D1-4
	B-B'	L-L'		and
	E-E'*	M-M'		D1-5
	C-C'	N-N'		
	D-D'*	O-O'		
		P-P'		
King Creek			X-X'	D1-6
O'Dell Creek			X-X'	D1-7

SUPPLEMENT D1
(Concluded)

LOCATION	VALLEY CROSS SECTION	CHANNEL CROSS SECTION	PROFILE	PAGE
Gate Creek			X-X'	D1-8
Poker Teechee Creek			X-X'	D1-9
Poker Jim Creek			X-X'	D1-10
North King Mining Unit	0A-0A'			D1-11
	0B-0B'			D1-12
	1A-1A'			D1-13
	1B-1B'			D1-14
	2A-2A'			D1-15
	2B-2B'			D1-16
	3A-3A'			D1-17
	3B-3B'			D1-18
	3C-3C'			D1-19
	4A-4A'			D1-20
	4B-4B'			D1-21
	4C-4C'			D1-22
	4D-4D'			D1-23
South O'Dell Mining Unit	AA-AA'			D1-24
	AB-AB'			D1-25
	AC-AC'			D1-26
	BA-BA'			D1-27
	BB-BB'			D1-28
	BC-BC'			D1-29
	CA-CA'			D1-30
	CB-CB'			D1-31
	CC-CC'			D1-32
	CD-CD'			D1-33
	CE-CE'			D1-34
	EA-EA'			D1-35
	EB-EB'			D1-36
	EC-EC'			D1-37
	FA-FA'			D1-38
	FB-FB'			D1-39
	FC-FC'			D1-40

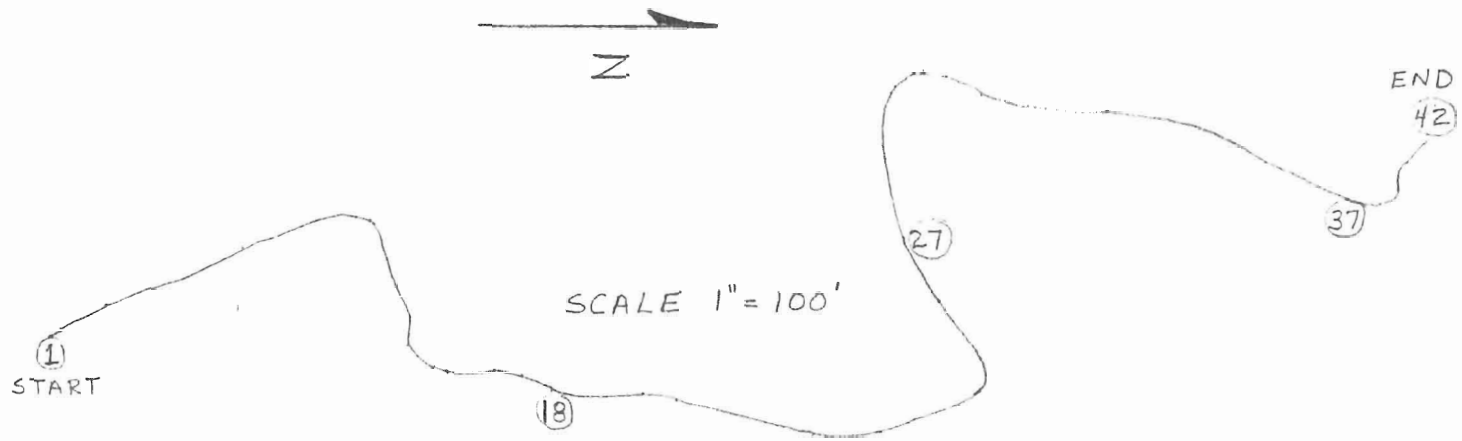
*Contained in Appendix C, Alluvial Valley Floor Assessment

NOTES:

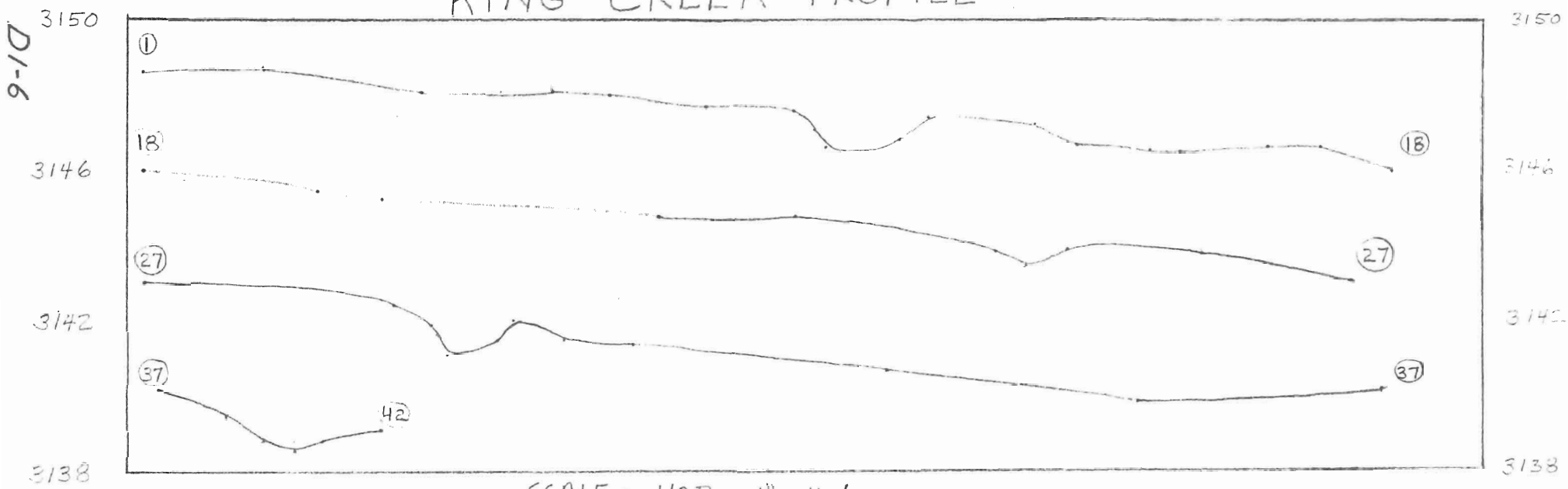
Cross section locations are shown on Map D-1.

Profiles and cross sections surveyed and plotted by IntraSearch 1979-1980

KING CREEK LONGITUDINAL PROFILE

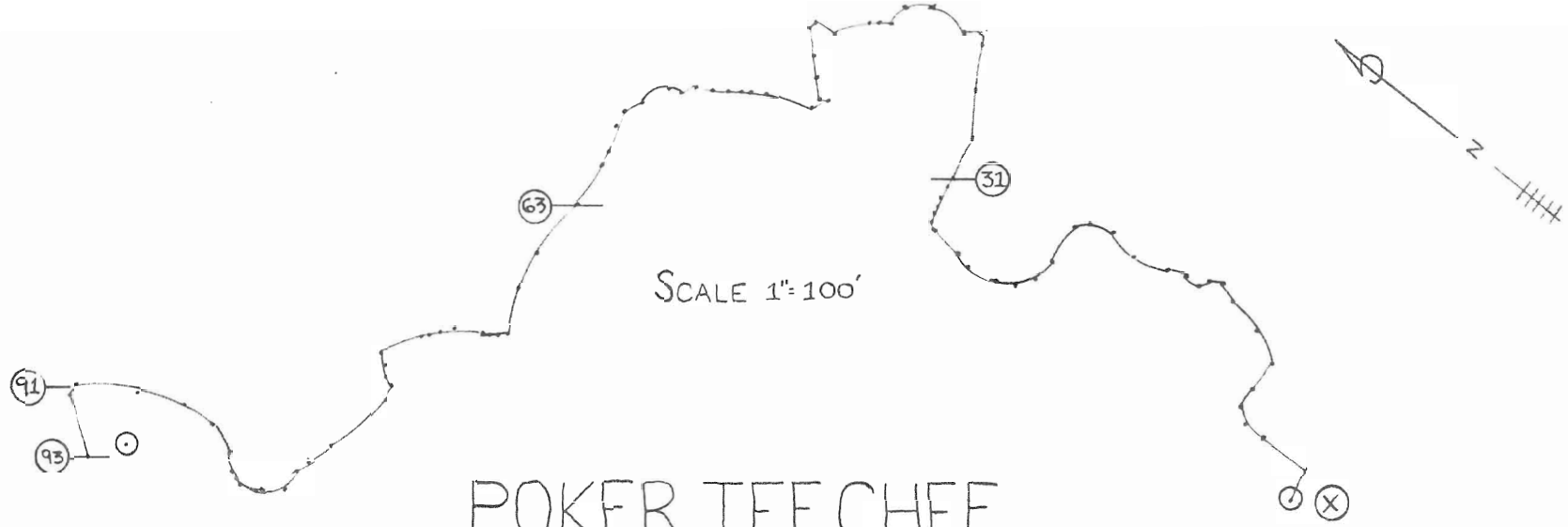


KING CREEK PROFILE



SCALE : HOR. 1" = 40'
1" = 4'

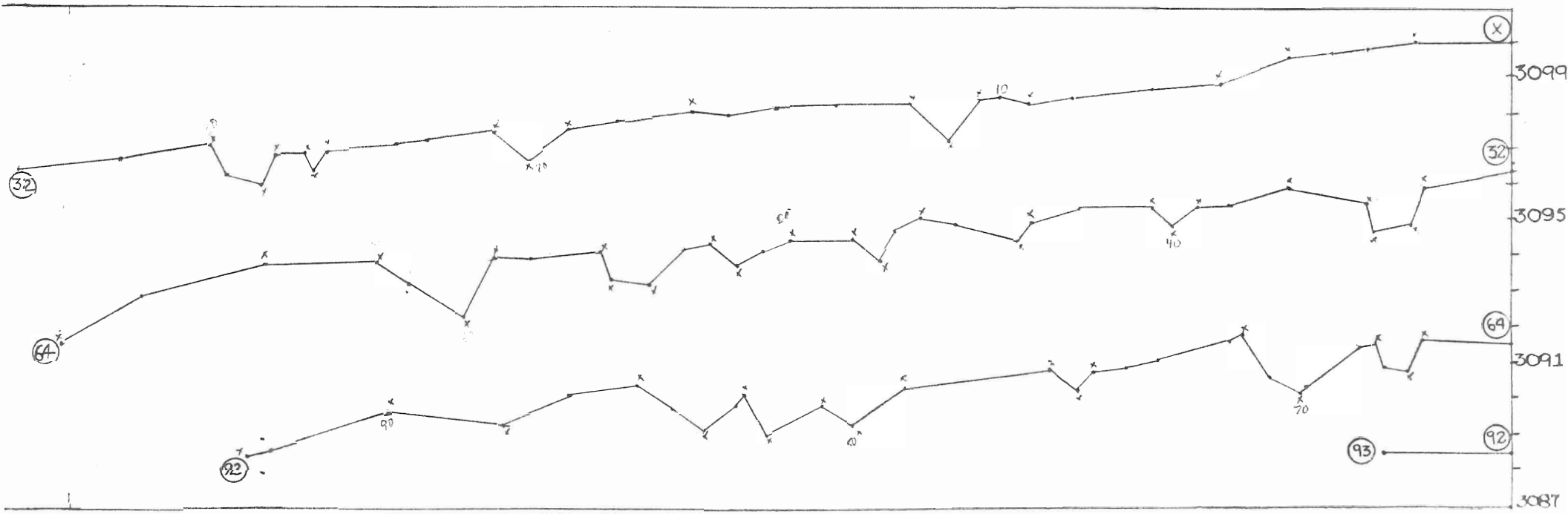
9-10



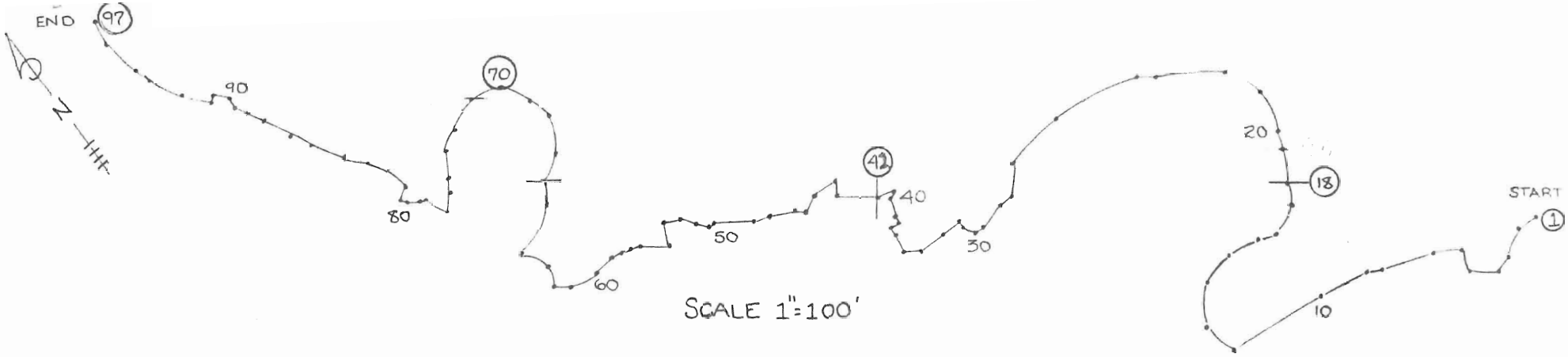
SCALE 1" = 100'

POKER TEECHEE PROFILE

SCALE HOR 1" = 40'
VER 1" = 4'

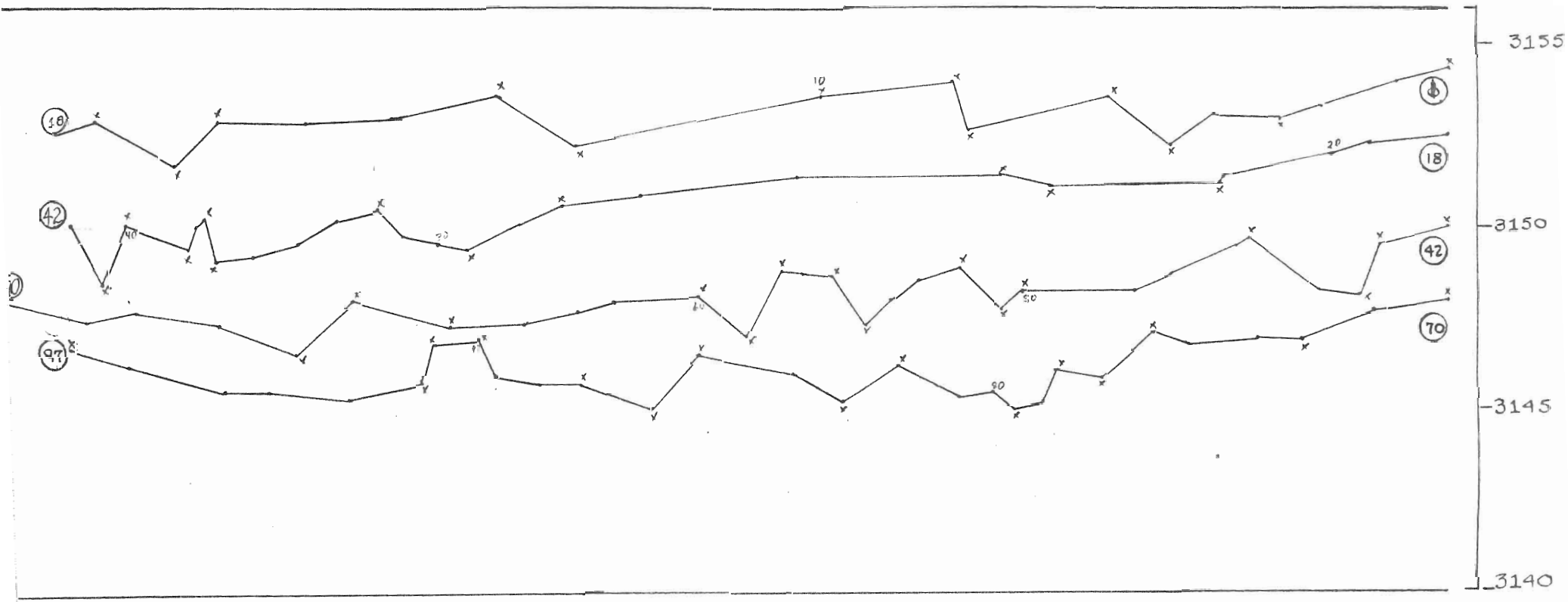


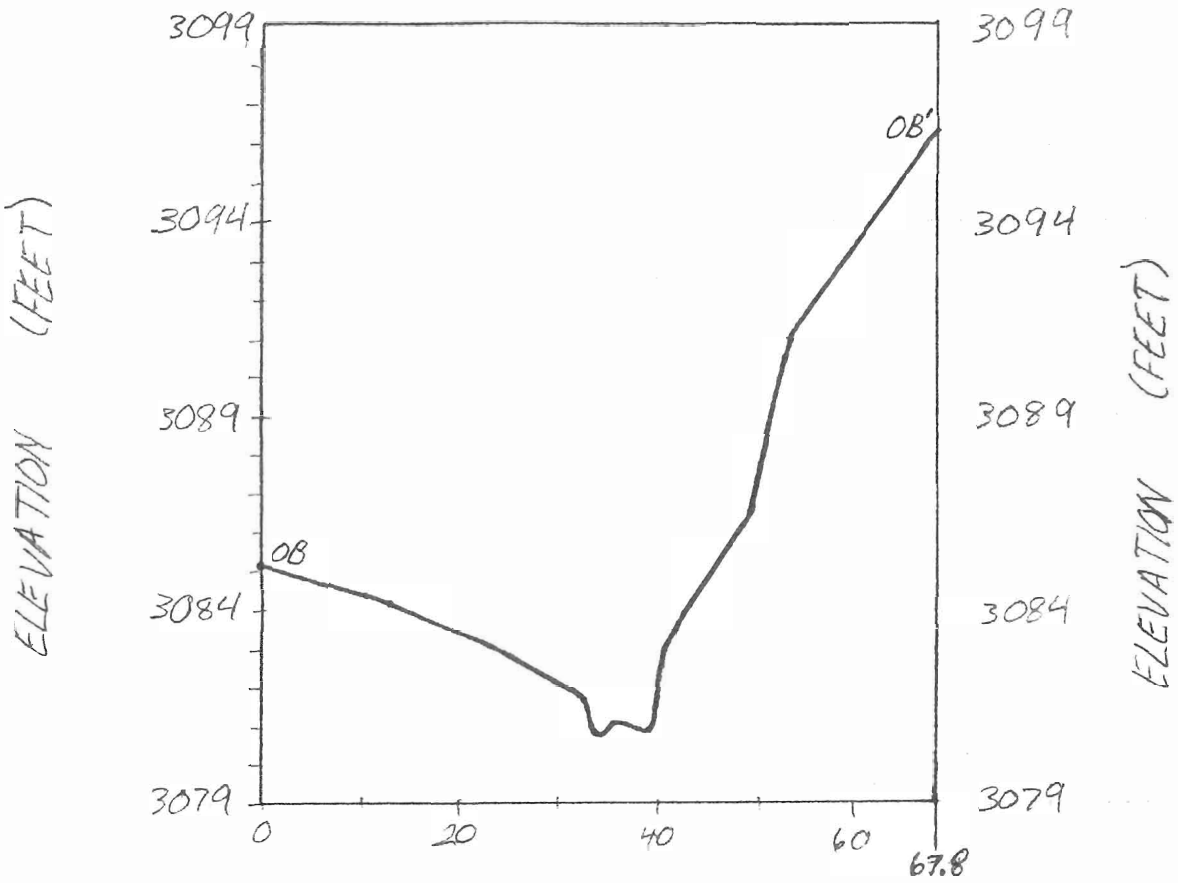
6-10



POKER JIM CREEK PROFILE

SCALE HOR 1"=40'
VER 1"=4'

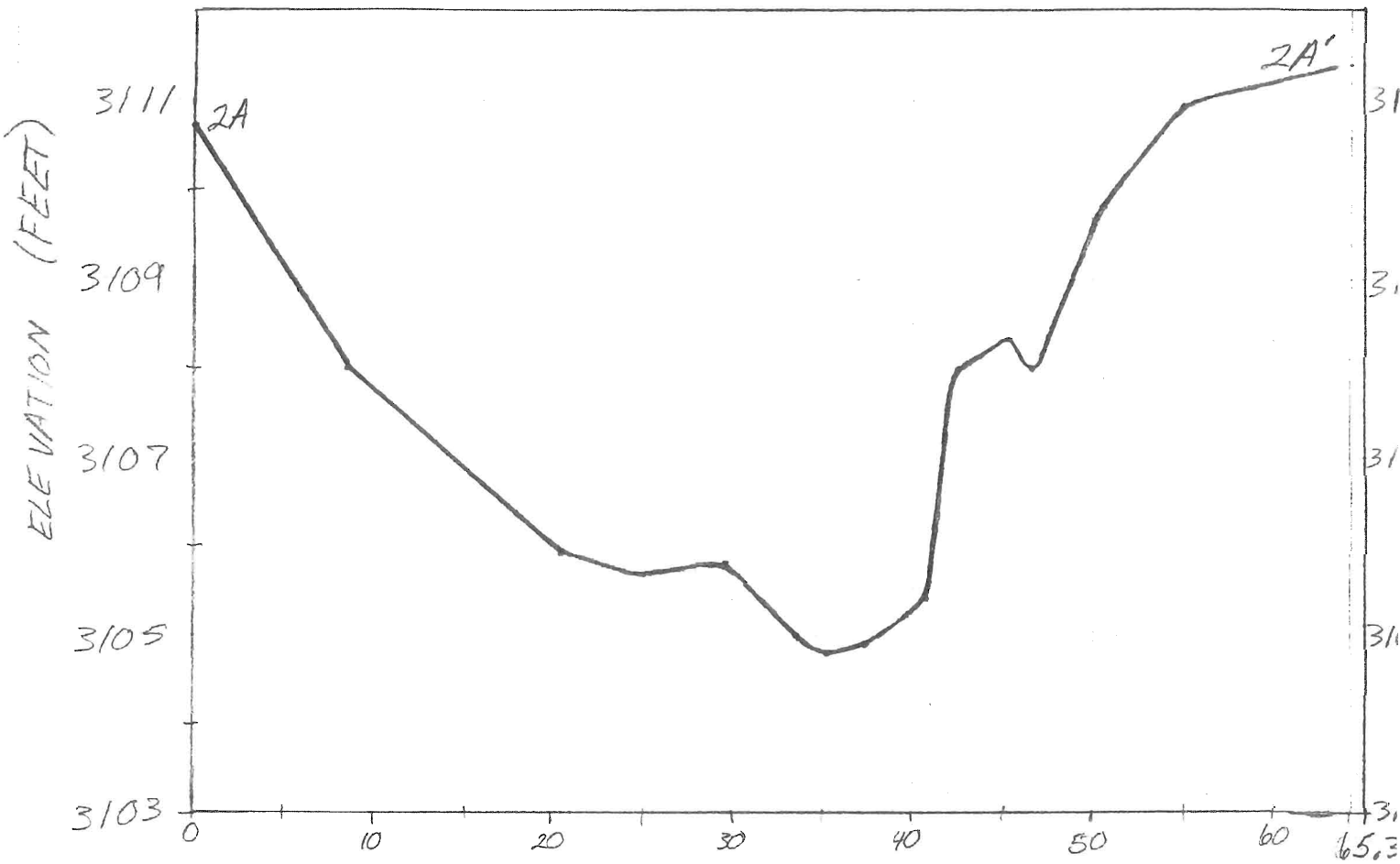




CROSS SECTION OB-OB'

VERTICAL SCALE : 1 INCH = 5 FEET

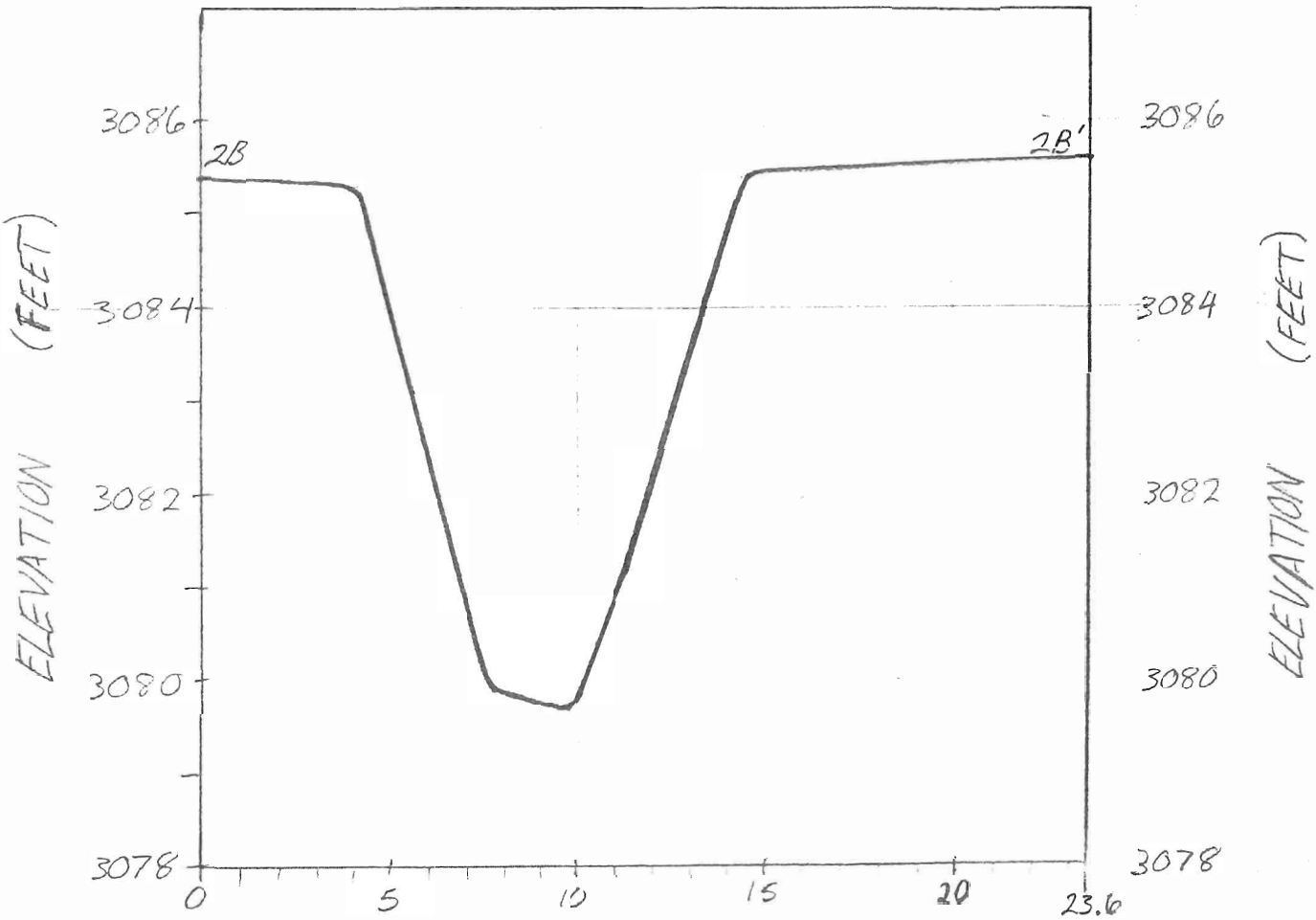
HORIZONTAL SCALE : 1 INCH = 20 FEET



CROSS SECTION 2A-2A'

VERTICAL SCALE: 1 INCH = 2 FEET

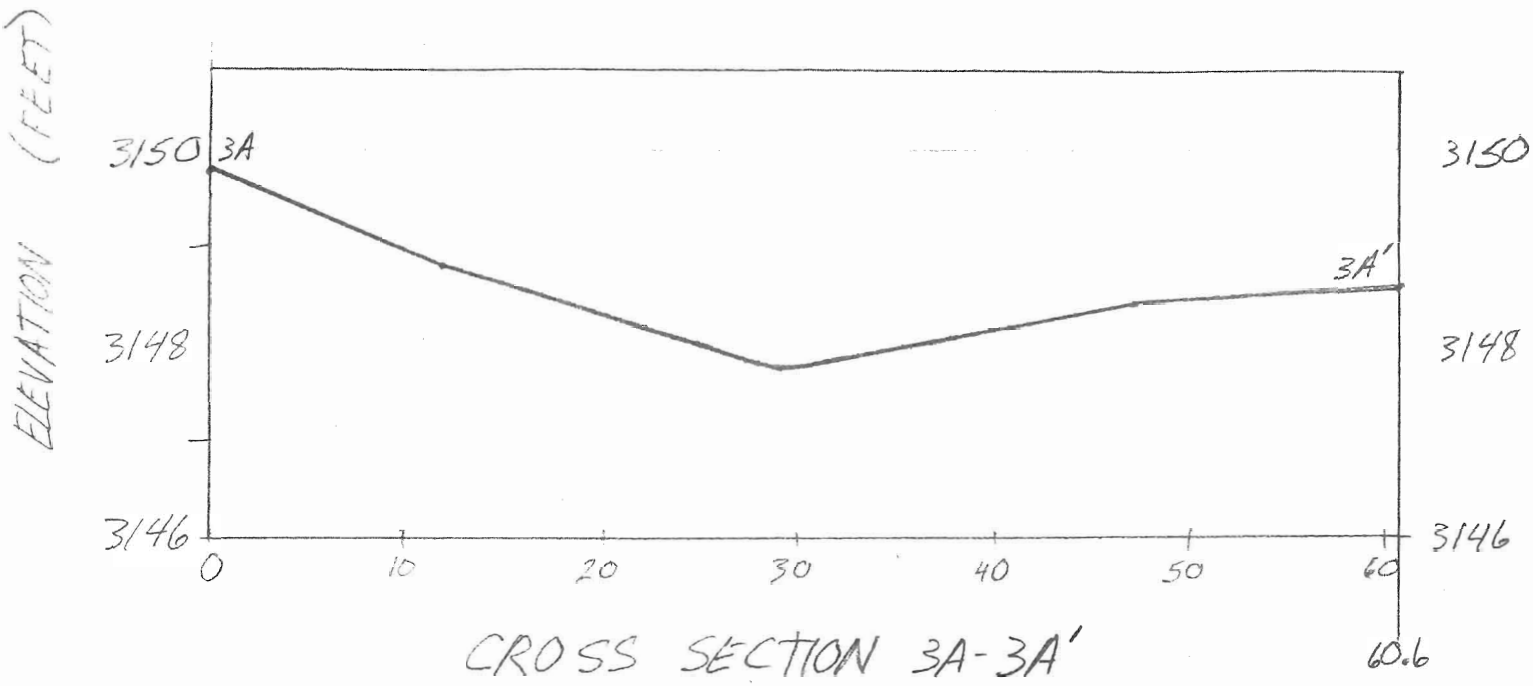
HORIZONTAL SCALE: 1 INCH = 10 FEET

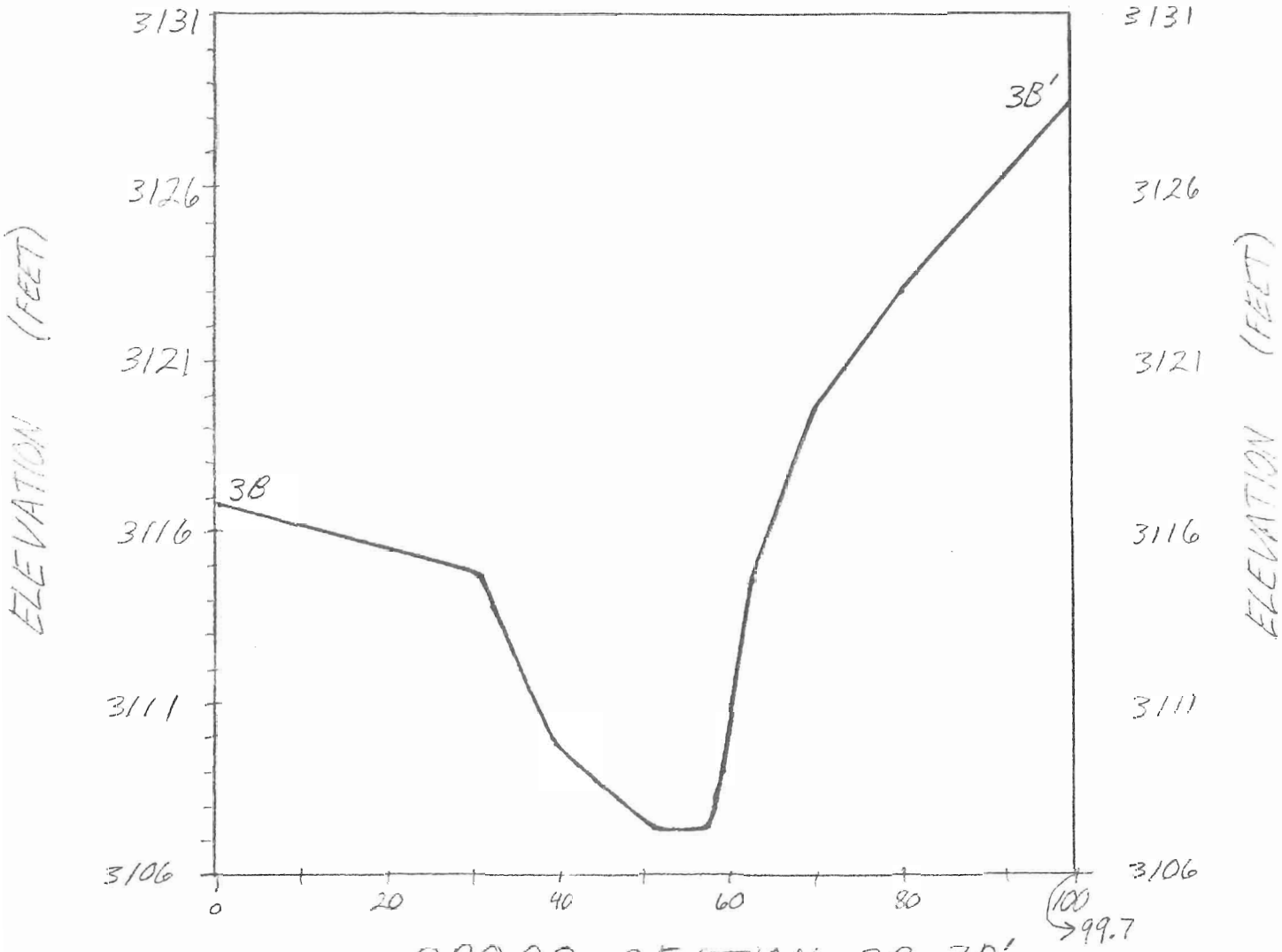


CROSS SECTION 2B-2B'

VERTICAL SCALE: 1 INCH = 2 FEET

HORIZONTAL SCALE: 1 INCH = 5 FEET

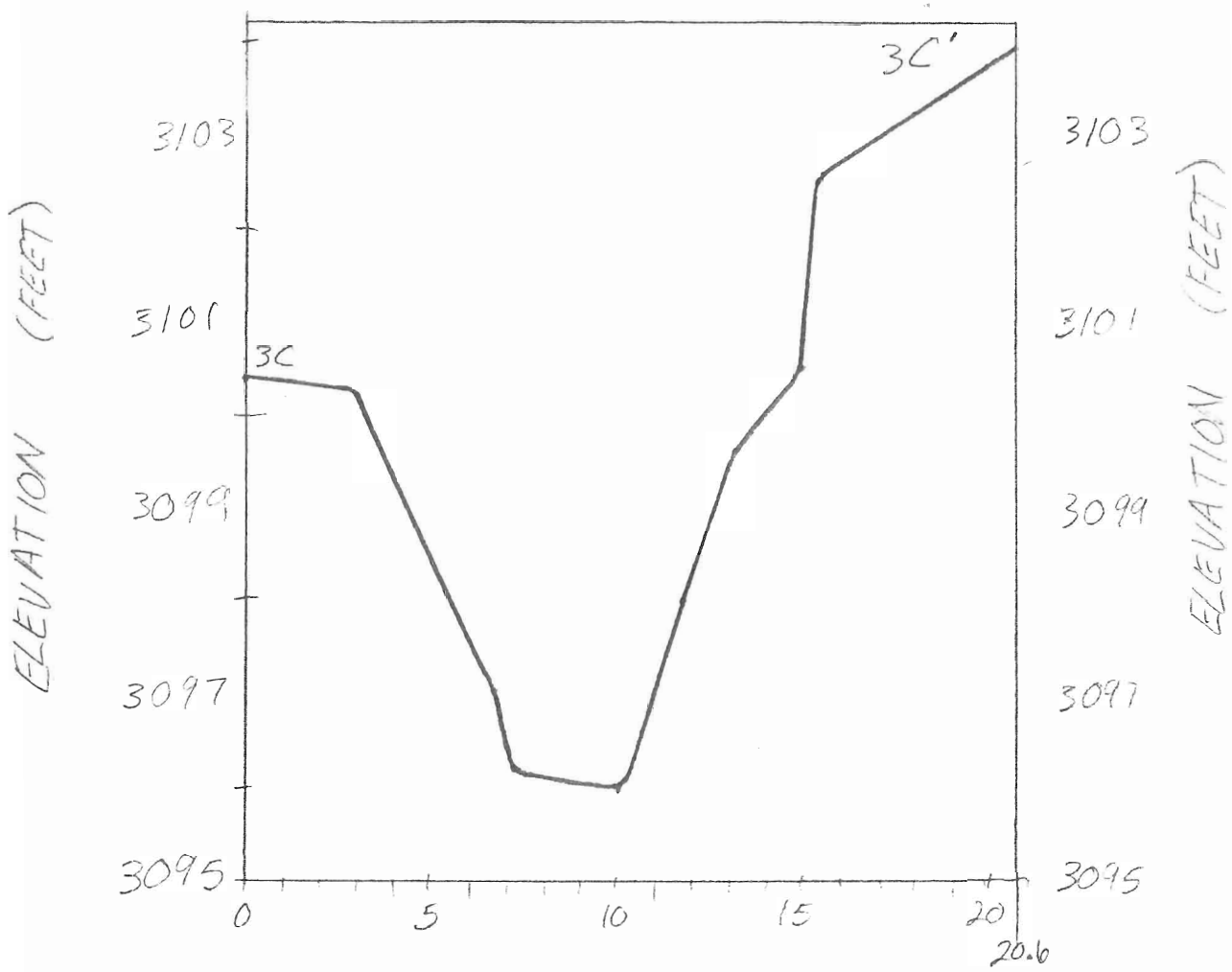

ELEVATION (FEET)
3150
3148
3146
3A
3A'
0
10
20
30
40
50
60
60.6
CROSS SECTION 3A-3A'



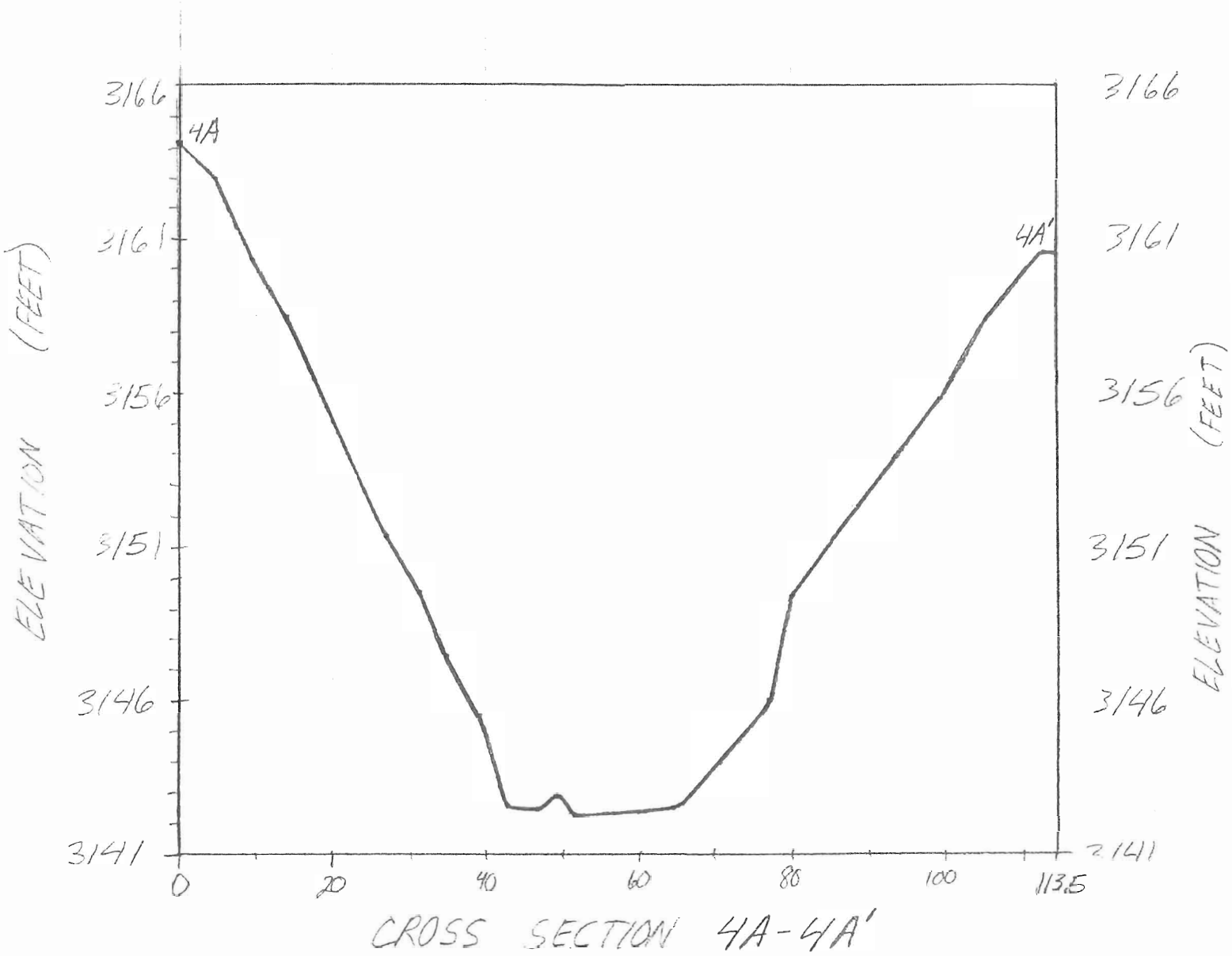
CROSS SECTION 3B-3B'

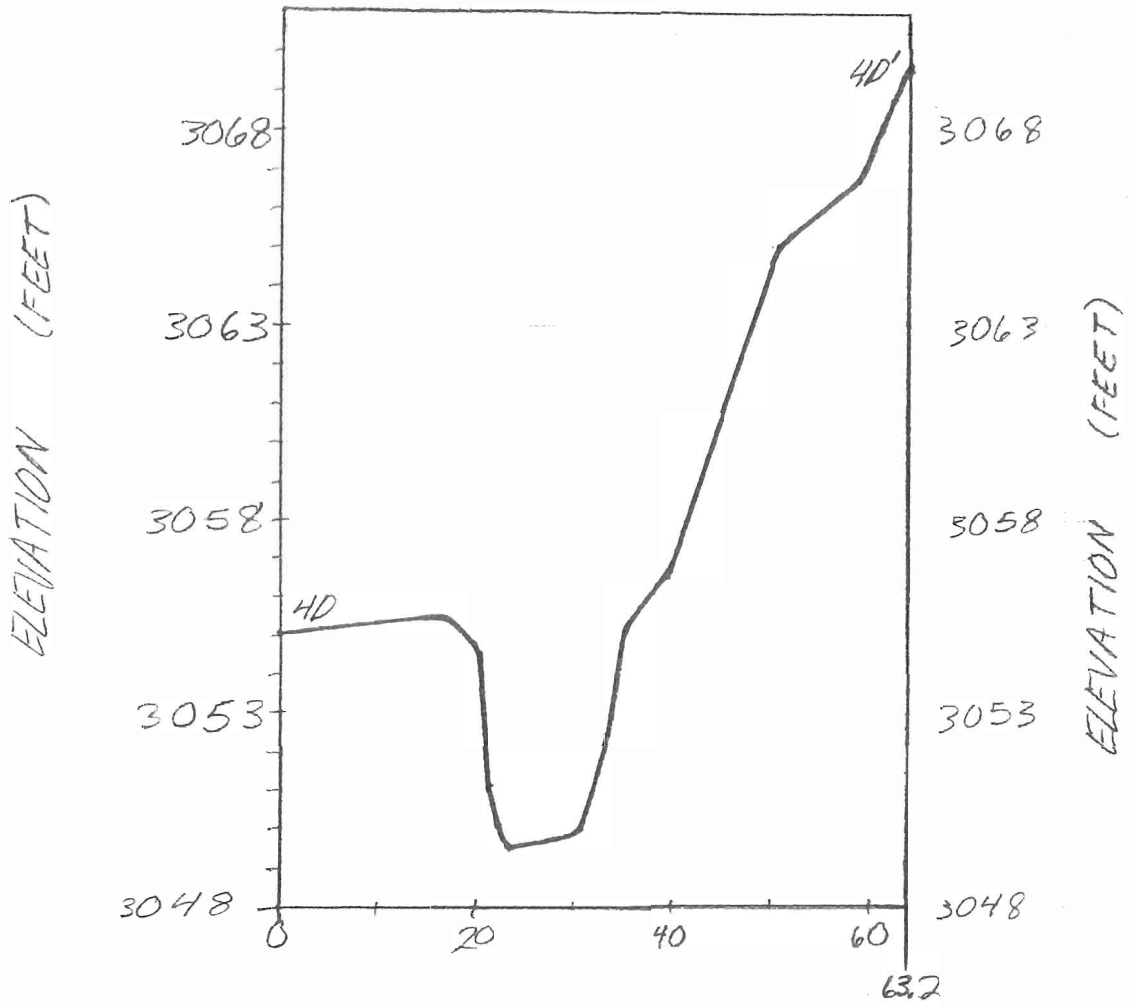
VERTICAL SCALE: 1 INCH = 5 FEET

HORIZONTAL SCALE: 1 INCH = 20 FEET



CROSS SECTION 3C-3C'

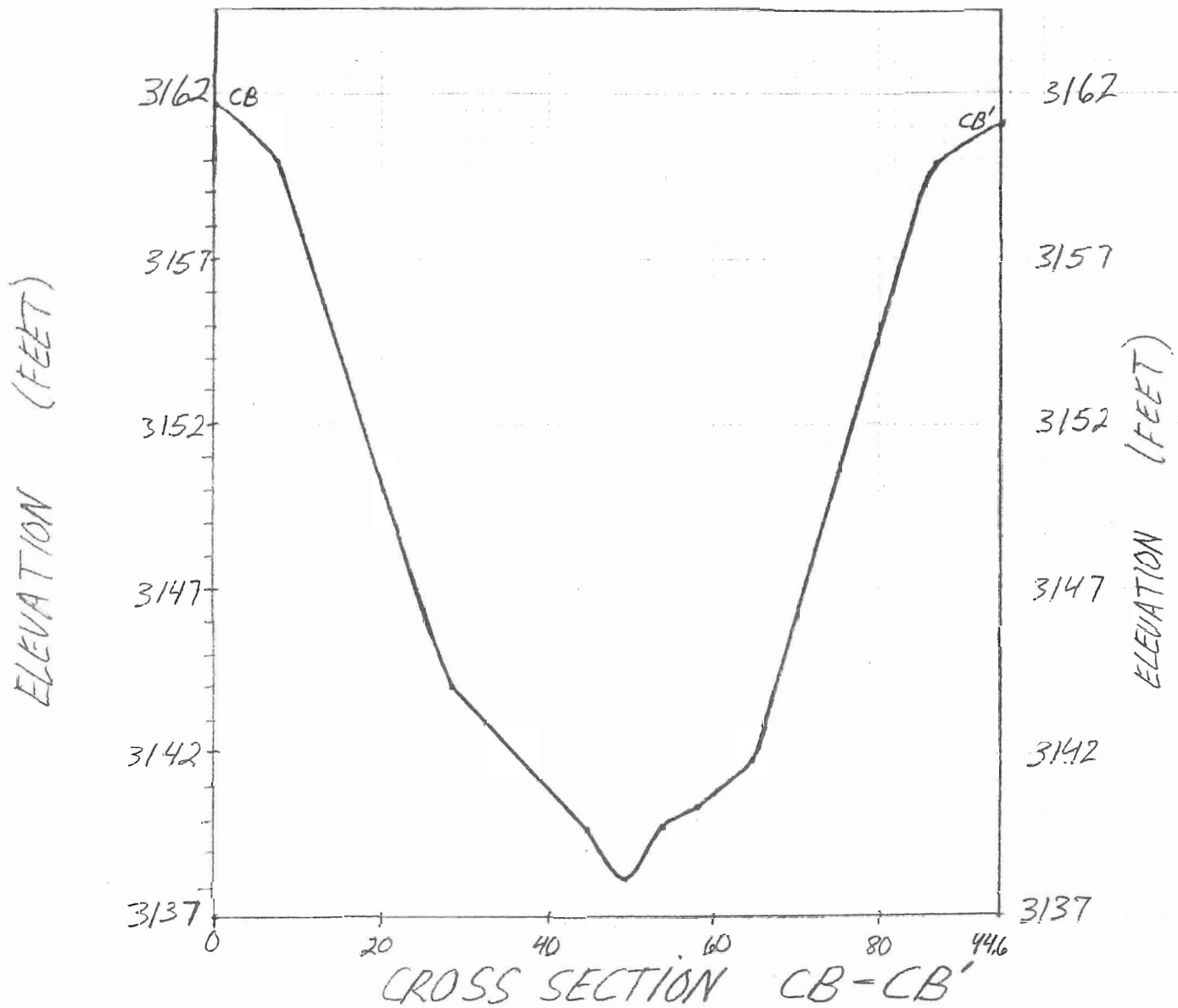

3166
3161
3156
3151
3146
3141
ELEVATION (FEET)
4A
4A'
0
20
40
60
80
100
113.5
CROSS SECTION 4A-4A'



CROSS SECTION 4D-4D'

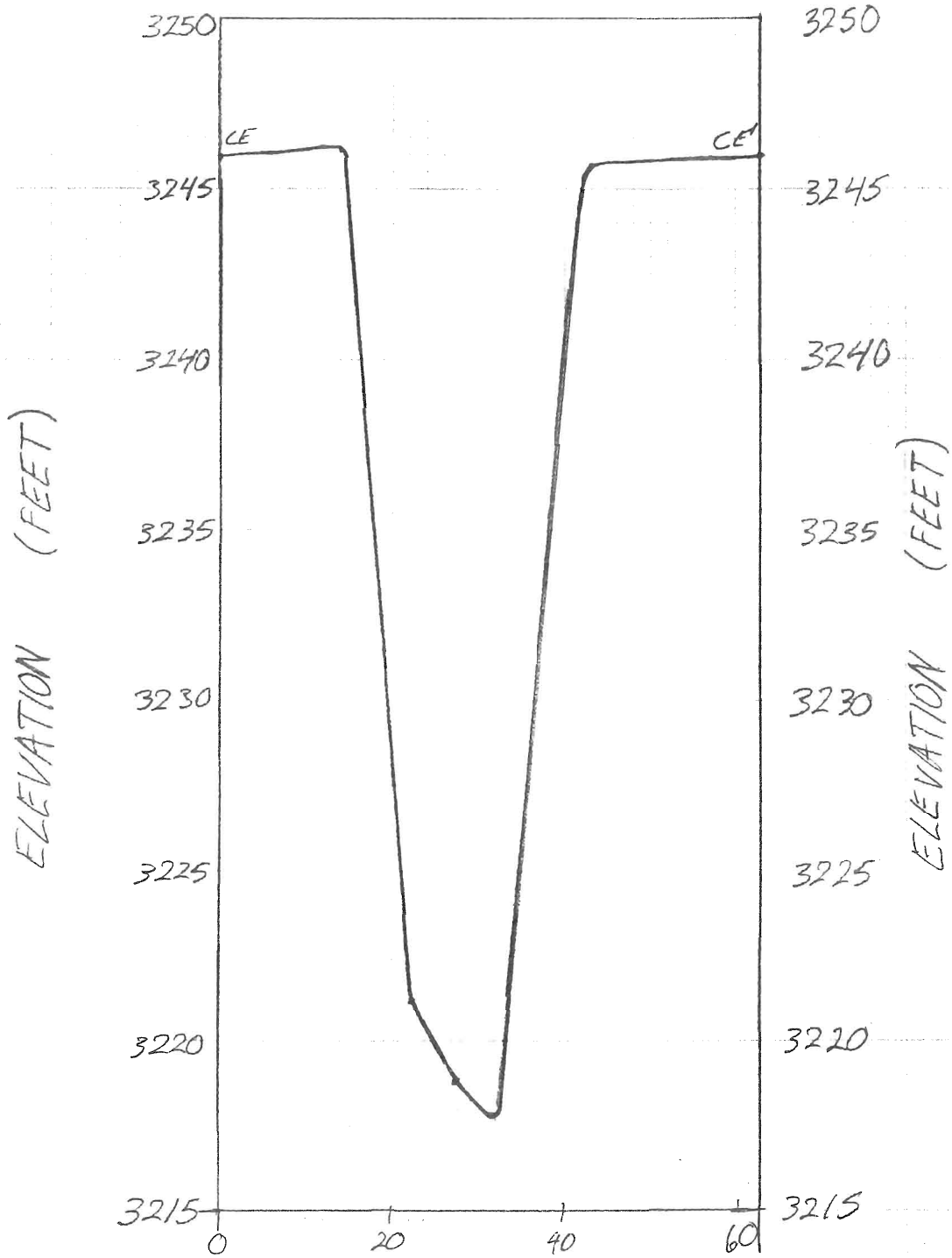
VERTICAL SCALE : 1 INCH = 5 FEET

HORIZONTAL SCALE : 1 INCH = 20 FEET



VERTICAL SCALE: 1 INCH = 5 FEET

HORIZONTAL SCALE: 1 INCH = 20 FEET



CROSS SECTION CE-CE'

VERTICAL SCALE: 1 INCH = 5 FEET

HORIZONTAL SCALE: 1 INCH = 20 FEET

SUPPLEMENT D2

SEDIMENT ANALYSES OF LABORATORY DATA
FOR THE MONTCO PROJECT AREA

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SUPPLEMENT D2

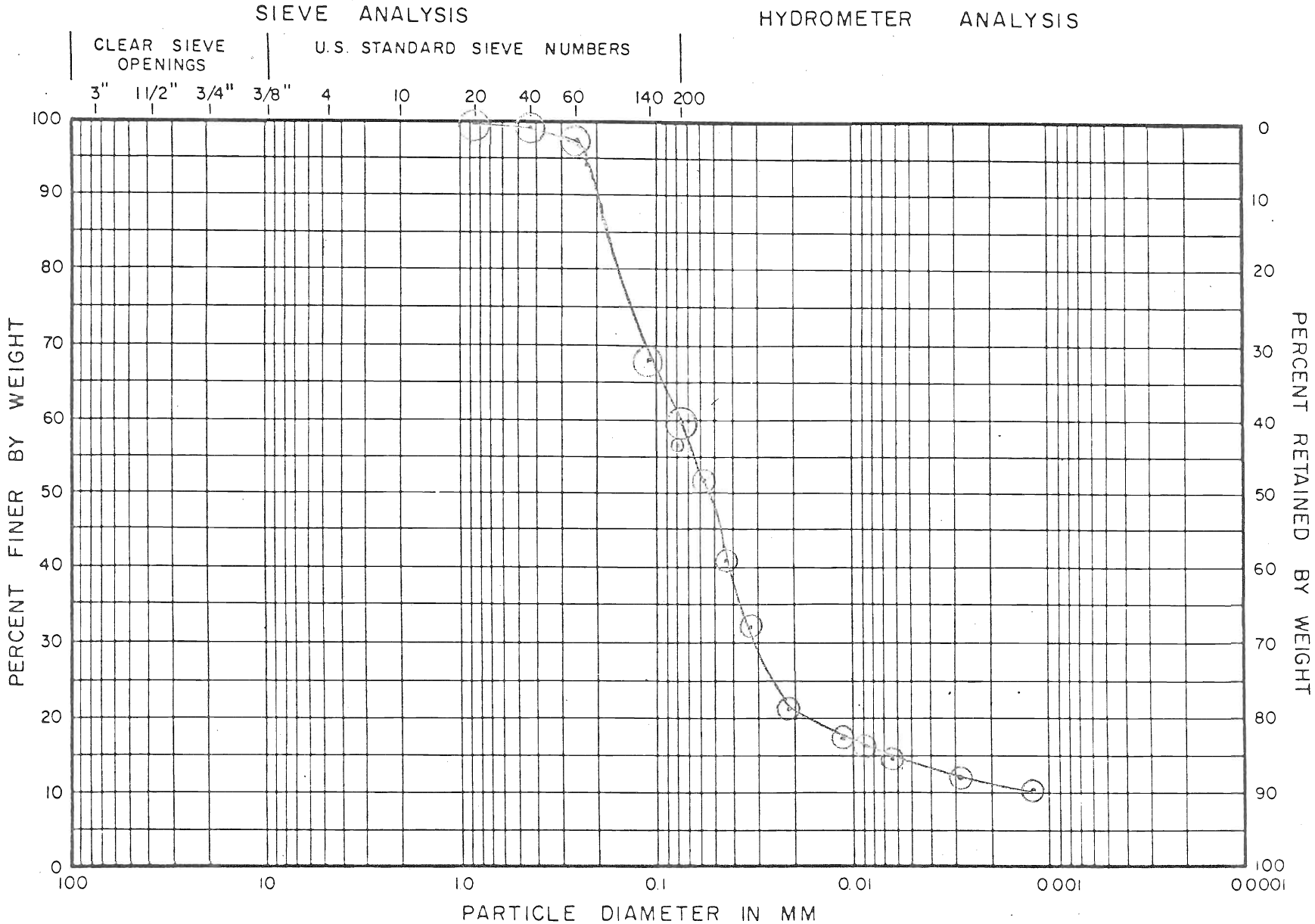
LISTING OF SEDIMENT ANALYSES PERFORMED
BY LOCATION

LOCATION		SPECIFIC GRAVITY		DRY UNIT WEIGHT	GRAIN SIZE ANALYSIS HYDROMETER		SIEVE	
		BED	BANK		BED	BANK	BED	BANK
King Creek	A-A'					X	X	X
	B-B'					X		X
	C-C'					X	X	X
Cedar Creek	B-B'				X	X	X	X
	C-C'				X	X	X	X
	D-D' Left Bank				X	X	X	X
	D-D' Right Bank					X		X
Dry Creek	A-A'		X			X	X	X
	B-B'		X			X	X	X
Gate Creek	A-A'				X	X	X	X
	B-B'		X			X	X	X
	E-E'		X			X	X	X
Poker Teechee Creek	A-A'		X			X	X	X
	B-B'		X			X	X	X
	C-C'		X			X	X	X
Poker Jim Creek	A-A'	X	X		X	X	X	X
	B-B'	X	X		X	X	X	X
	C-C'	X	X		X	X	X	X
	D-D' (Bar)		X			X	X	X
	D-D' (Thalweg)						X	
North King Mining Unit	OA-OA'						X	
	OB-OB'					X	X	X
	1A-1A'					X	X	X
	1B-1B'						X	
	2A-2A'				X	X	X	
	2B-2B'					X	X	X
	3B-3B'						X	X
	3C-3C'						X	X
	4A-4A'					X	X	X
	4B-4B'					X	X	X
	4C-4C'					X	X	X
	4D-4D'					X	X	
South O'Dell Mining Unit	AA-AA'						X	X
	AB-AB'						X	X
	AC-AC'					X	X	X
	BA-BA'				X	X	X	X

SUPPLEMENT D2
(Concluded)

LOCATION		SPECIFIC GRAVITY		UNIT WEIGHT	GRAIN SIZE ANALYSIS HYDROMETER		SIEVE	
		BED	BANK		BED	BANK	BED	BANK
South O'Dell Mining Unit (Continued)	BB-BB'				X	X	X	X
	BC-BC'					X		X
	CA-CA'				X	X	X	X
	CB-CB'						X	X
	CC-CC'					X	X	X
	CD-CD'				X	X	X	X
	CE-CE' (Lower)					X		X
	CE-CE' (Upper					X		X
	EA-EA'				X	X	X	X
	EB-EB'				X	X	X	X
	EC-EC'					X	X	X
	FA-FA'						X	X
	FB-FB'					X	X	X
	FC-FC'				X	X	X	X
Stock Pond 14	T.P. 1		X	X	X			
S.P. 16	T.P. 2		X	X	X			
	T.P. 8				X			
S.P. 18	T.P. 2			X				
S.P. 21	T.P. 1		X	X	X		X	
	T.P. 2		X		X		X	
	T.P. 3(0-27")		X		X		X	
	T.P. 3 (31"-102")		X		X		X	
S.P. 23	T.P. 1		X	X	X		X	
S.P. 26	T.P. 3		X		X		X	

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



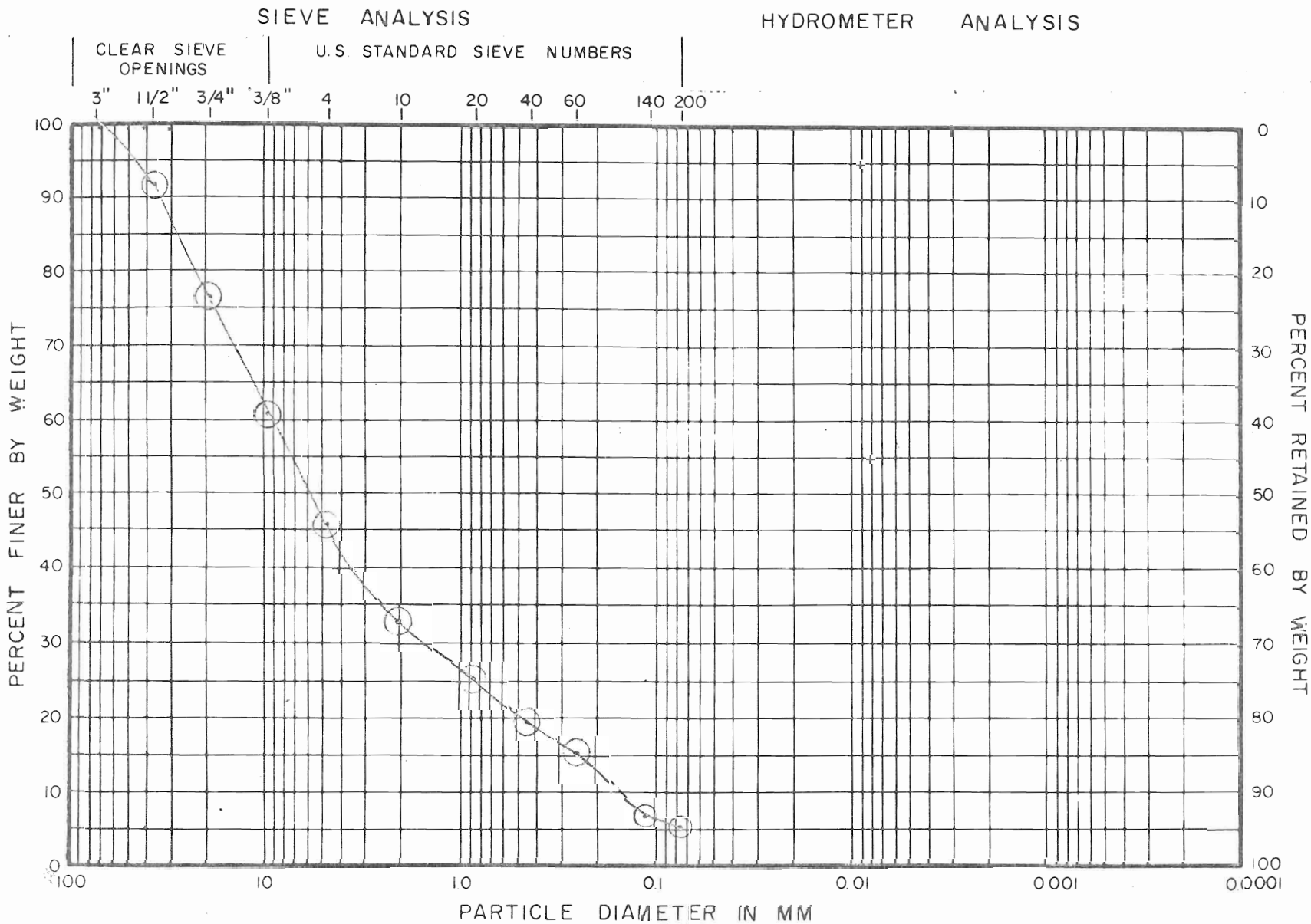
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
King Cr	Sec A-A	Silt, very sandy, sl clayey	ML (SM)	.001		
	Comp Bank					

CBL
1-25-80

D2-4

DRAFT PRODUCTION



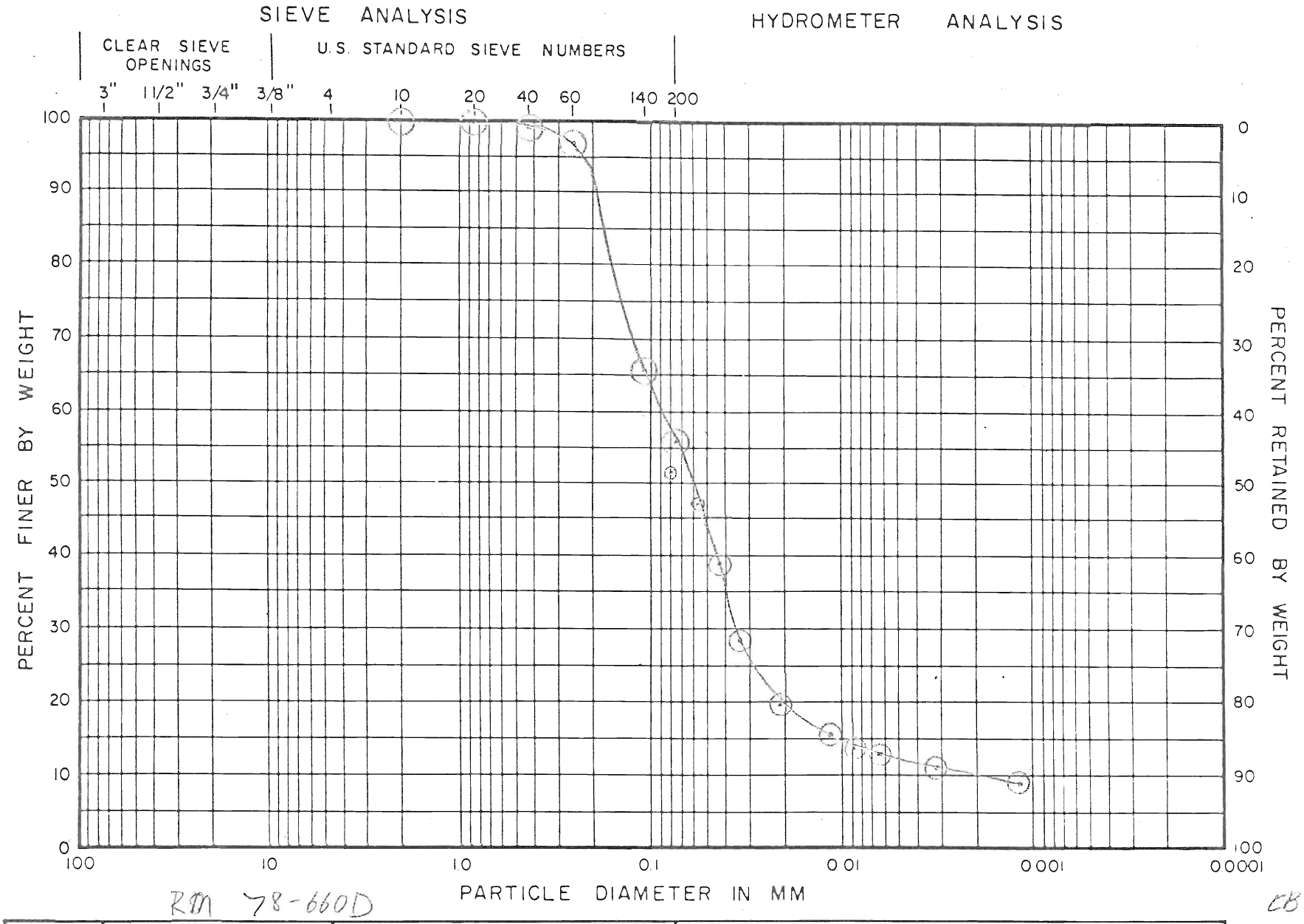
GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

D'APPOLONIA

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC.%
King Creek	See Dwg	Kin 78-60 LD				
	Bed Sample		GW			
		Sand and gravel - coarse				

CBL
12-24-79



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

PHILADELPHIA

D2-6

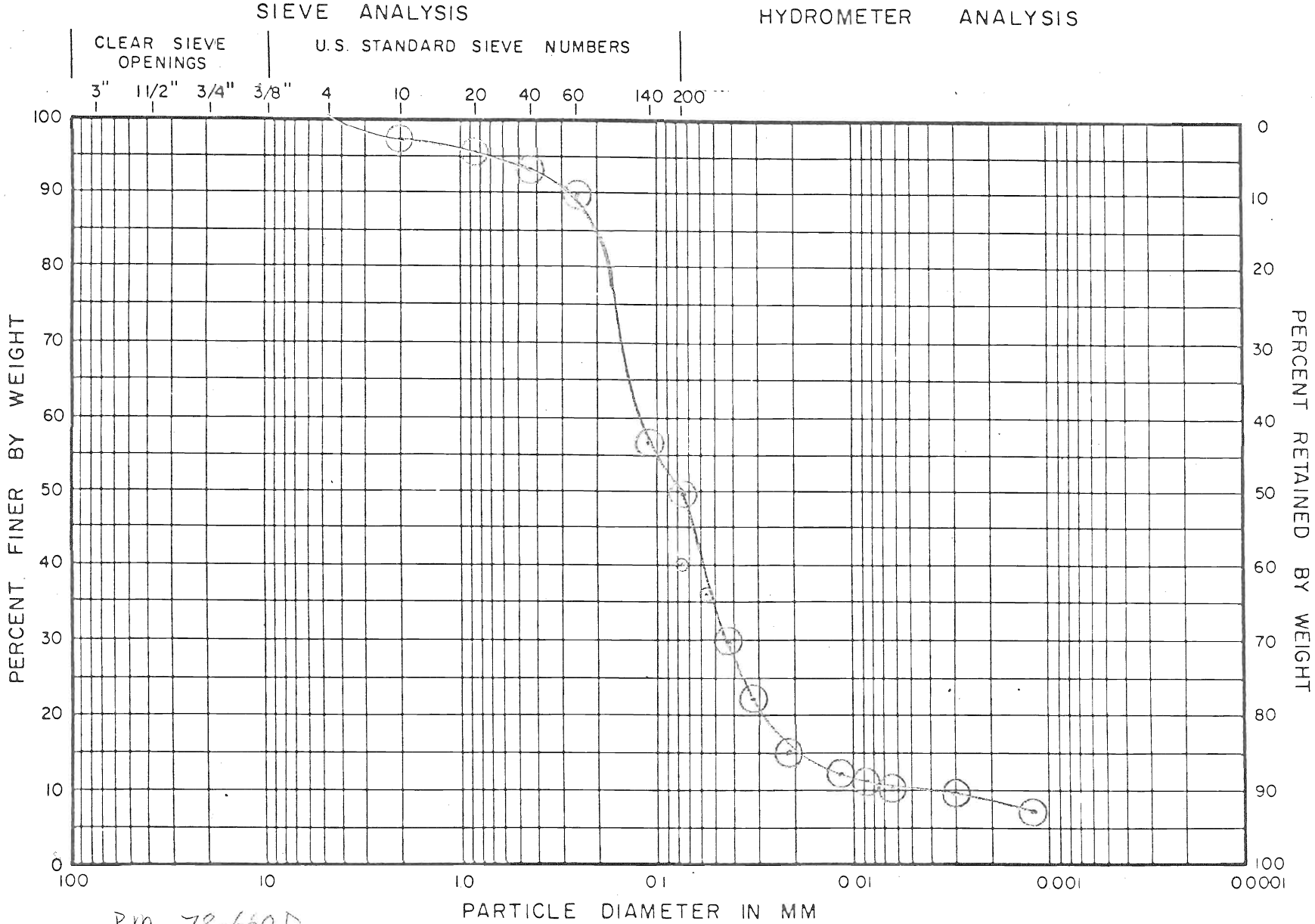
RM 78-660D

CBL
1-25-60

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
King Cr	Spec B-6 Bank	Sand - silt, sh clayey	SM-ML	.002		

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



Rm 78-660 D

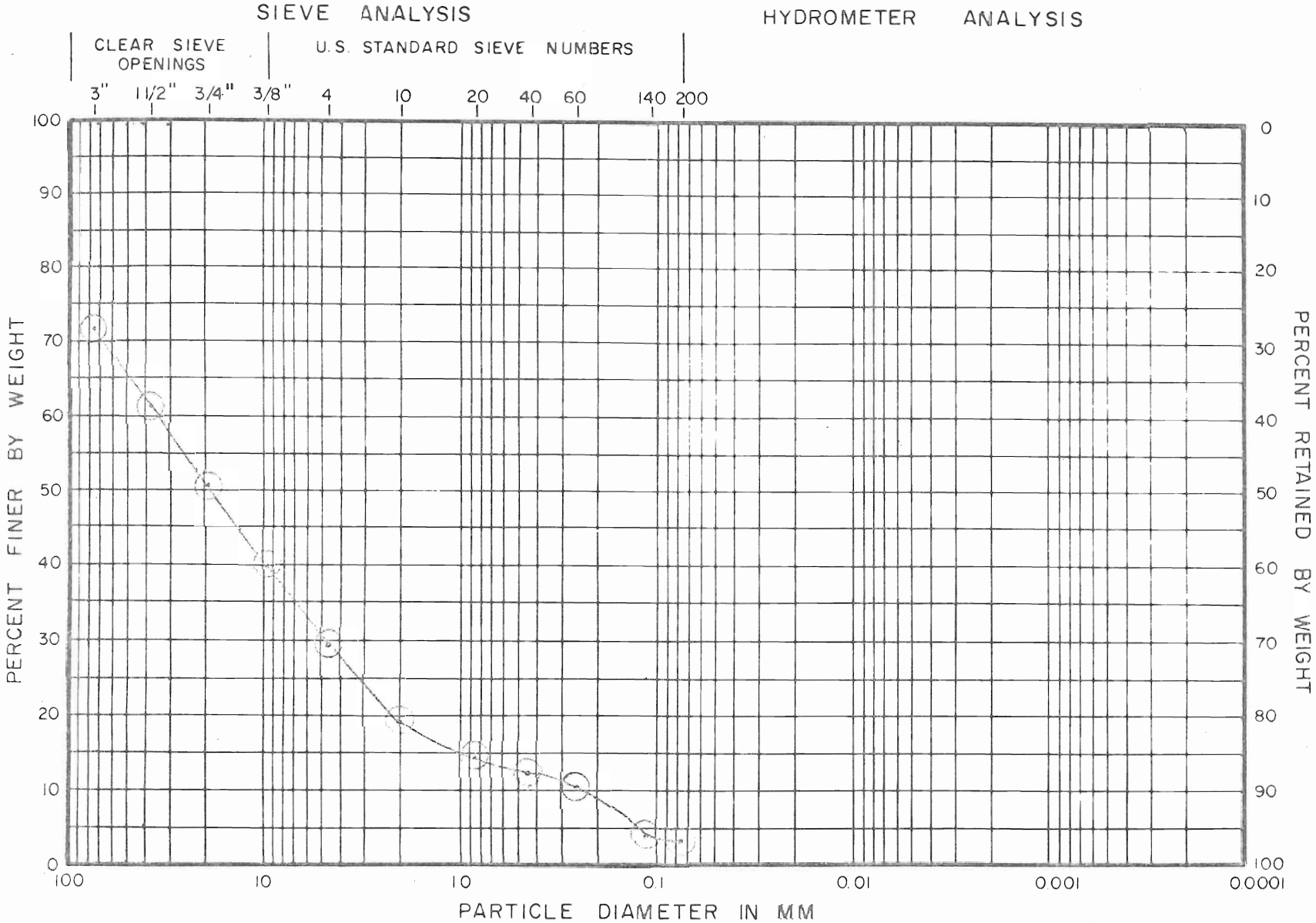
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
King Cr	Rec CC	Sand - v. silty	SM ML	.006		
	Temp. Bank					

CBL
1-25-80

D2-7

ORIGINAL



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

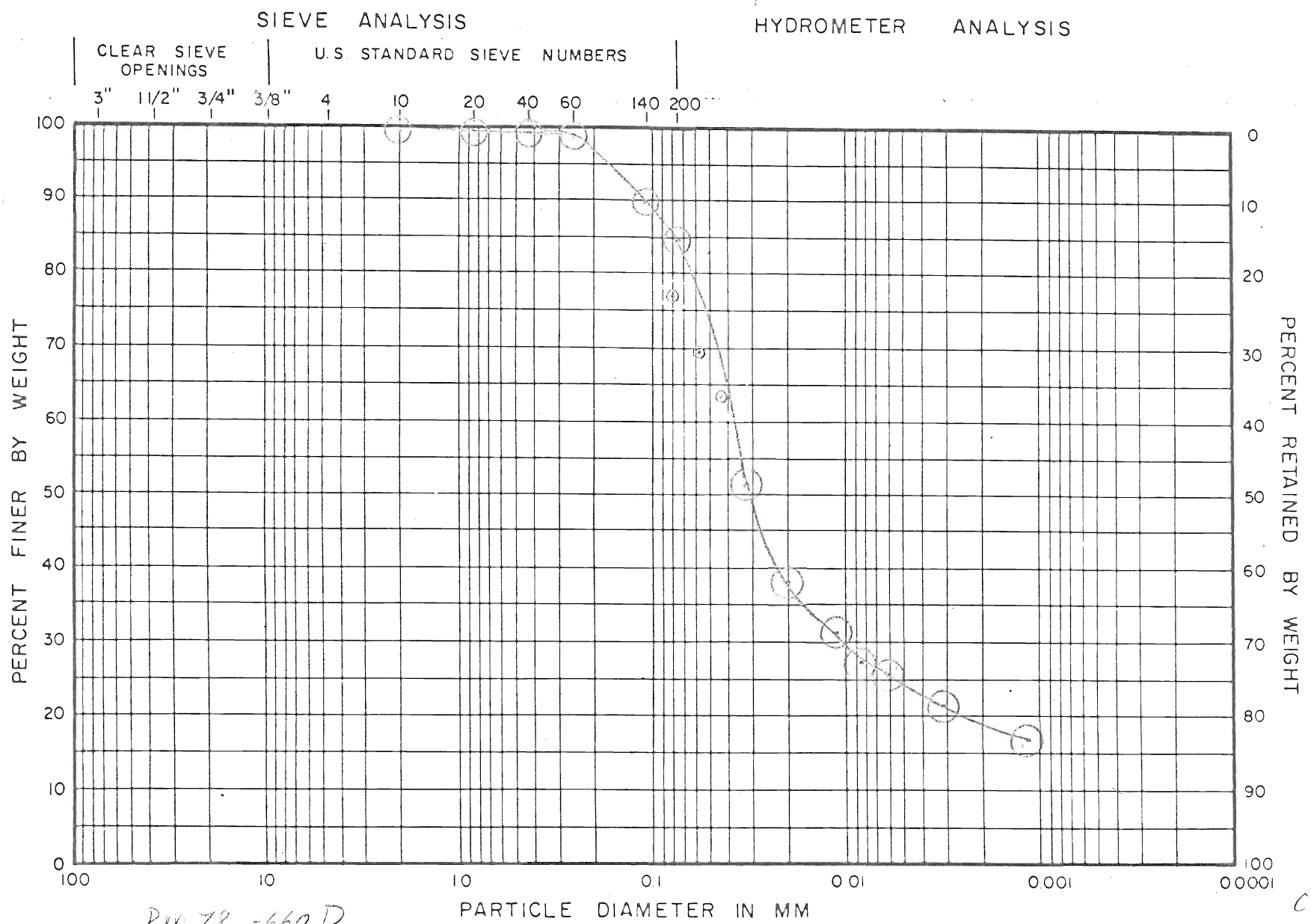
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC,%
King	See C-C	Km '78-000 C				
Cedar	Bed Sample	Sand and gravel - coarse	GW			

D-0

CBL

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RW 78 -660 D

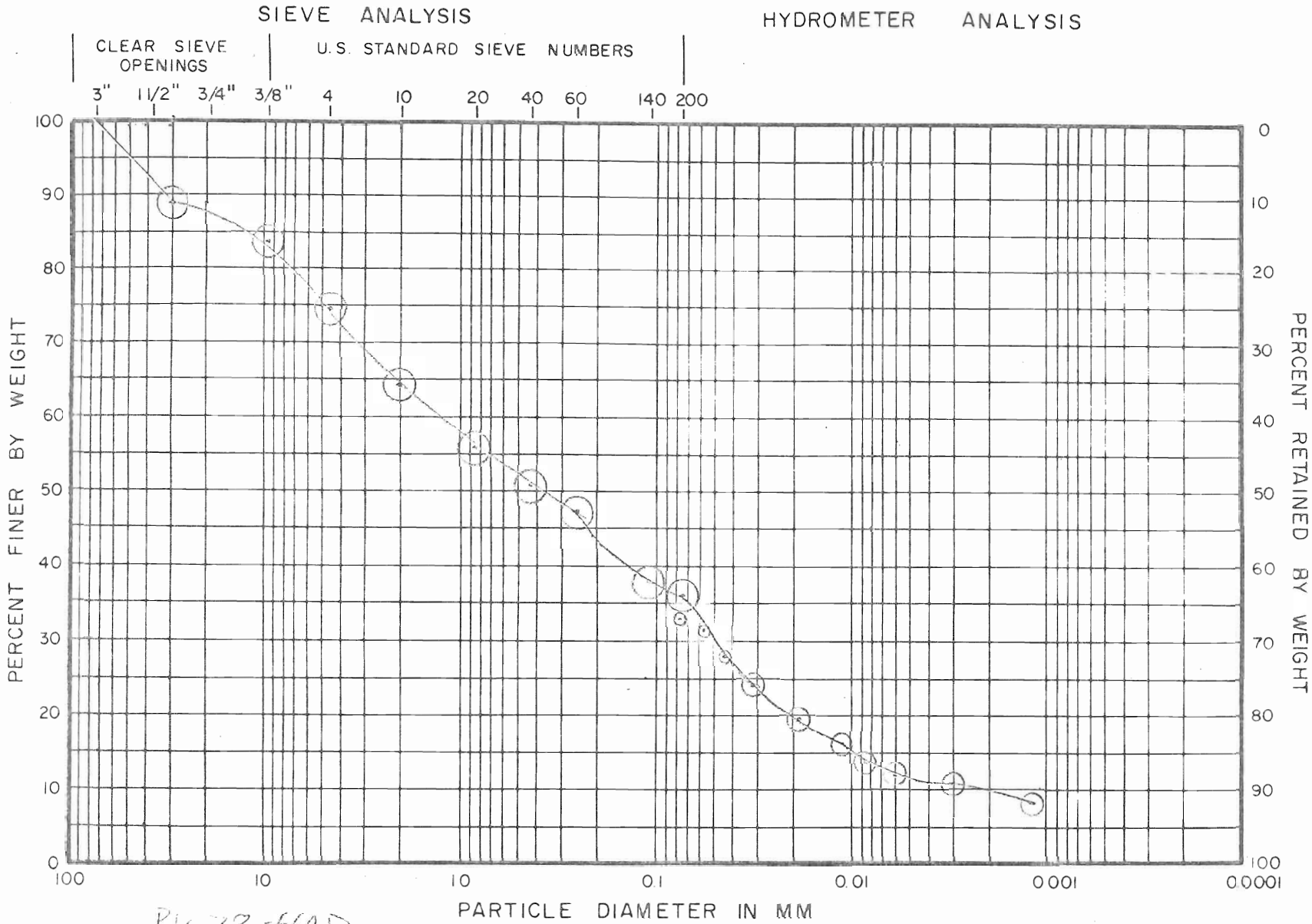
CBL
1-25-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Cedar Cr	See E-E Bank	Silt, clayey, sl. sandy	ML	≈.0004		

5-20

DRAFT



Rv. 78-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

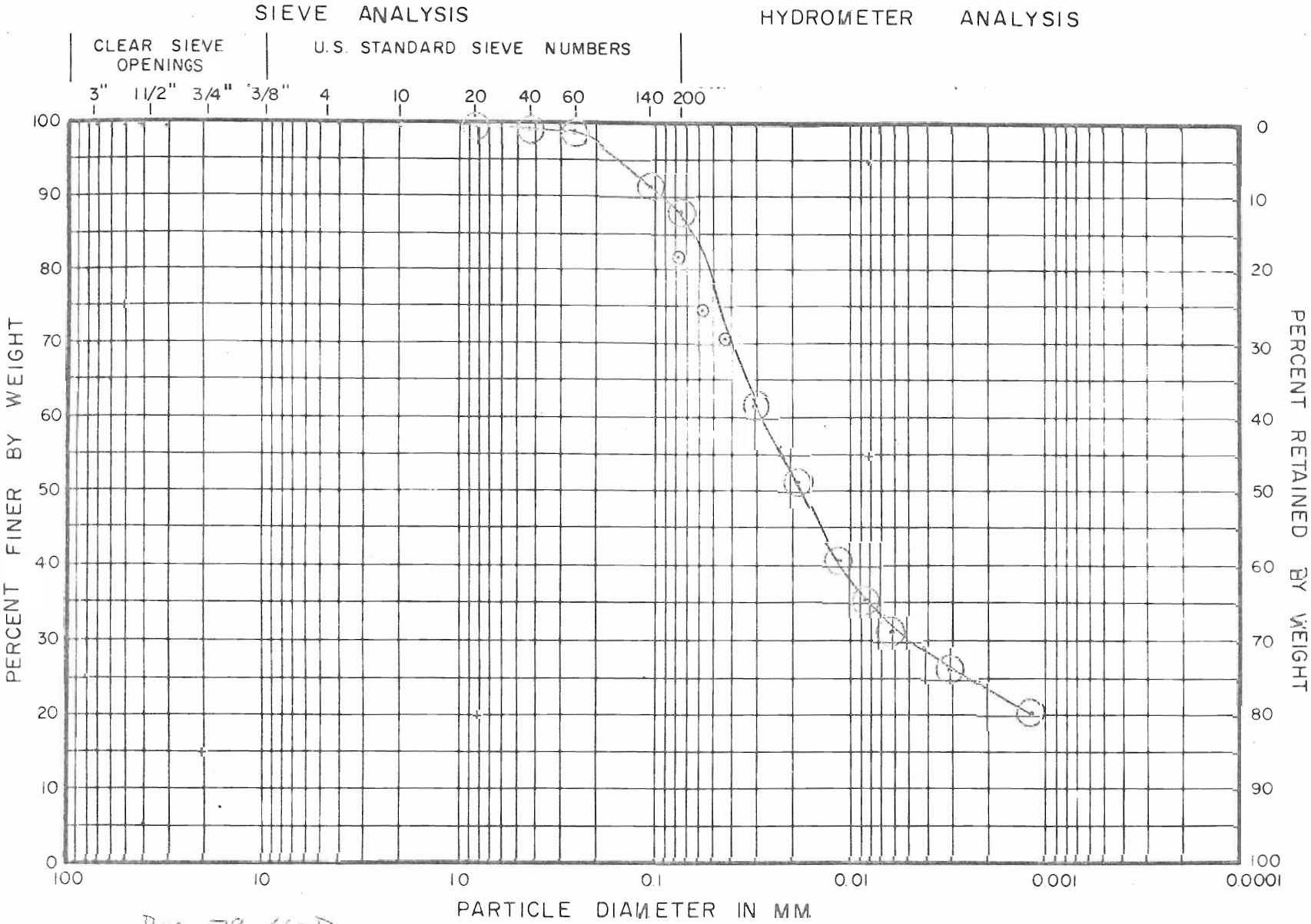
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Cedar Cr	Sec. B-E Bed	Gravel & sand, silty	SM	.002		

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

D'APPOLONIA

CBL 1-25-80

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



Rm 78-650D

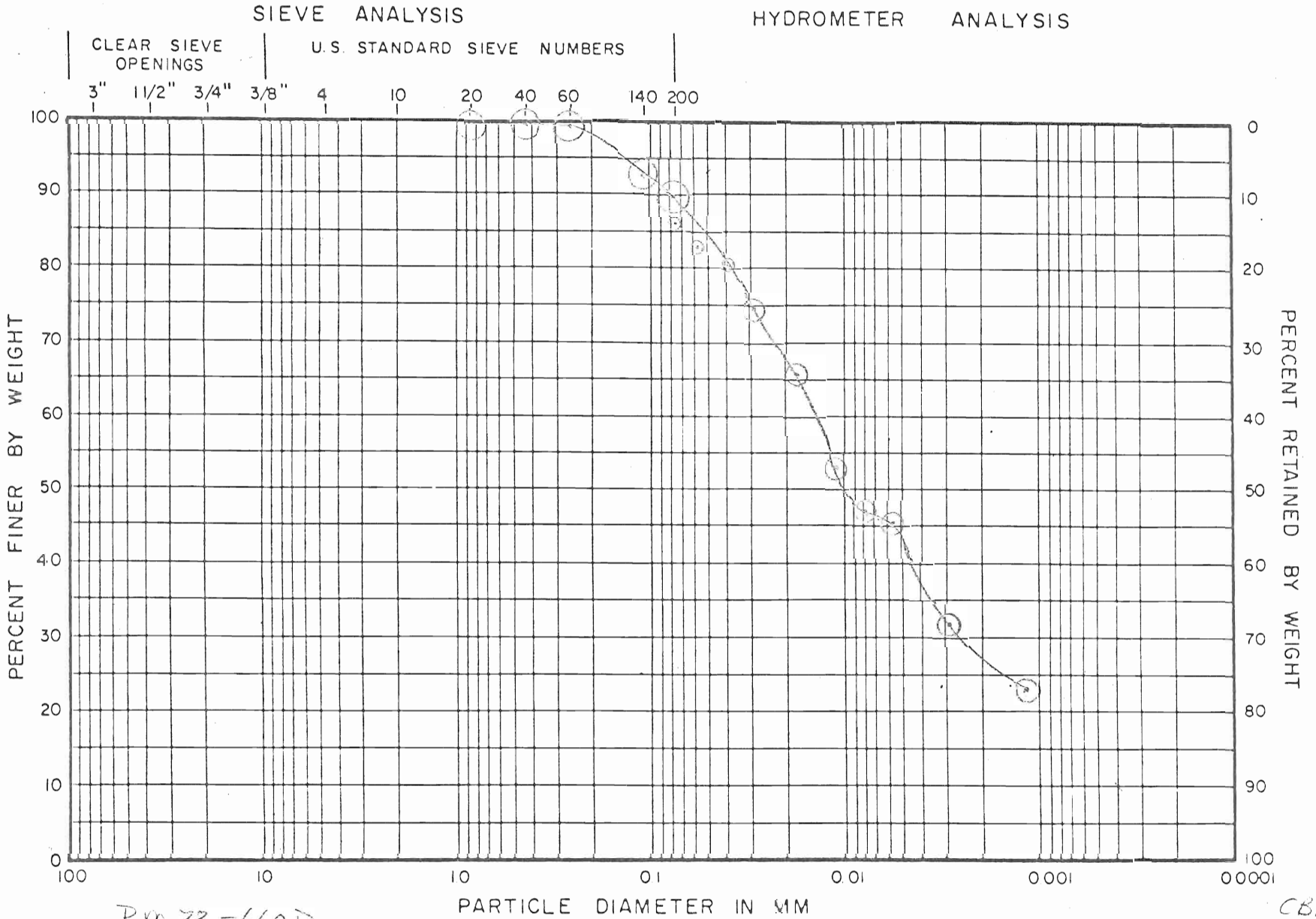
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Coda: Cr	Sec C-C	Silt, sandy-clayey	ML	≈0.003		
	Comp Tan C					

CBL
1-25-80

11-60

DAPPOLONIA



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

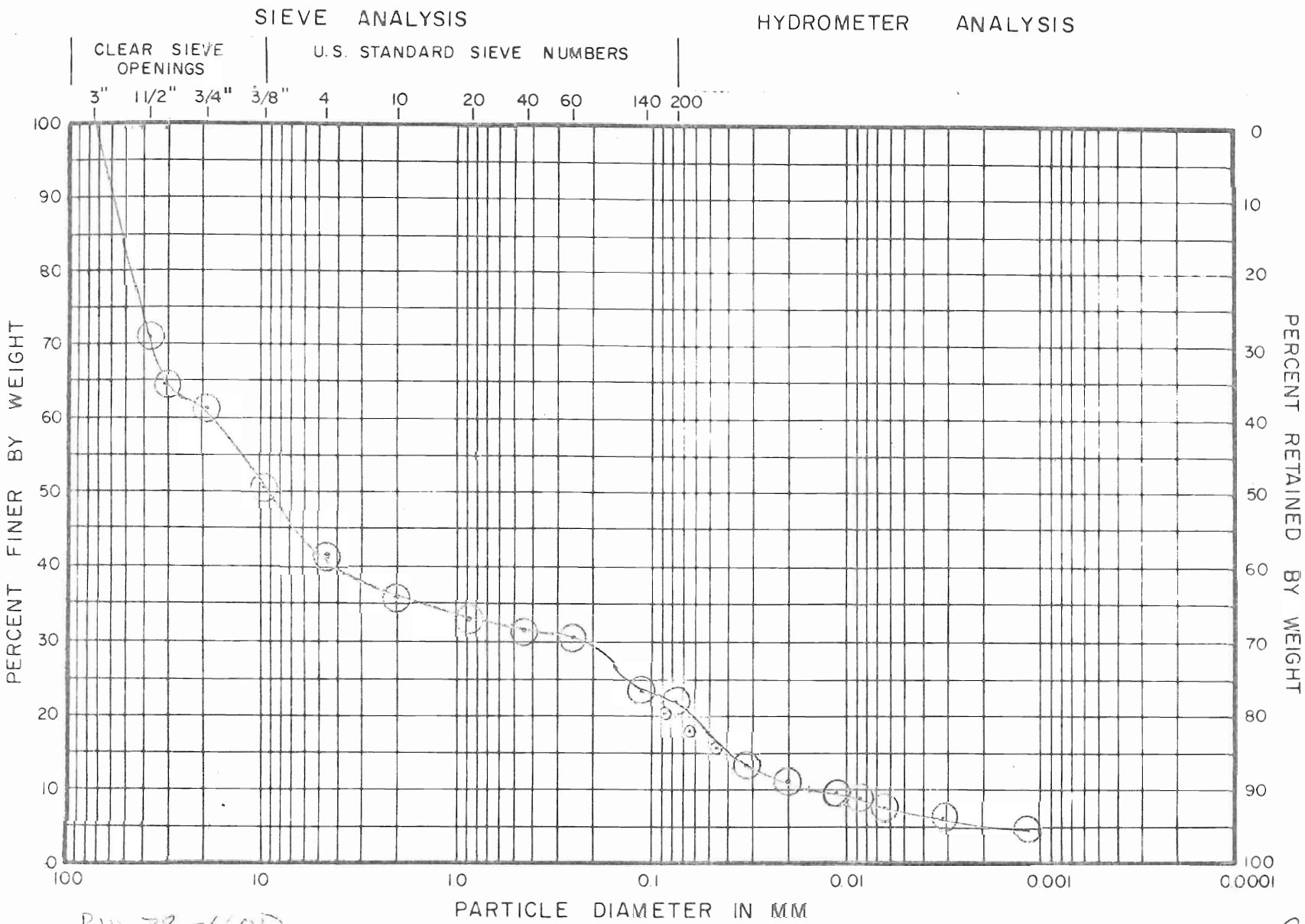
PHILADELPHIA

Rm 78-660D

CBL 1-22-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Cobb Cr	See C-C Red	Silt, sandy-clayey		≈.0004		



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

DAMPIDONIA

Rm 78-660D

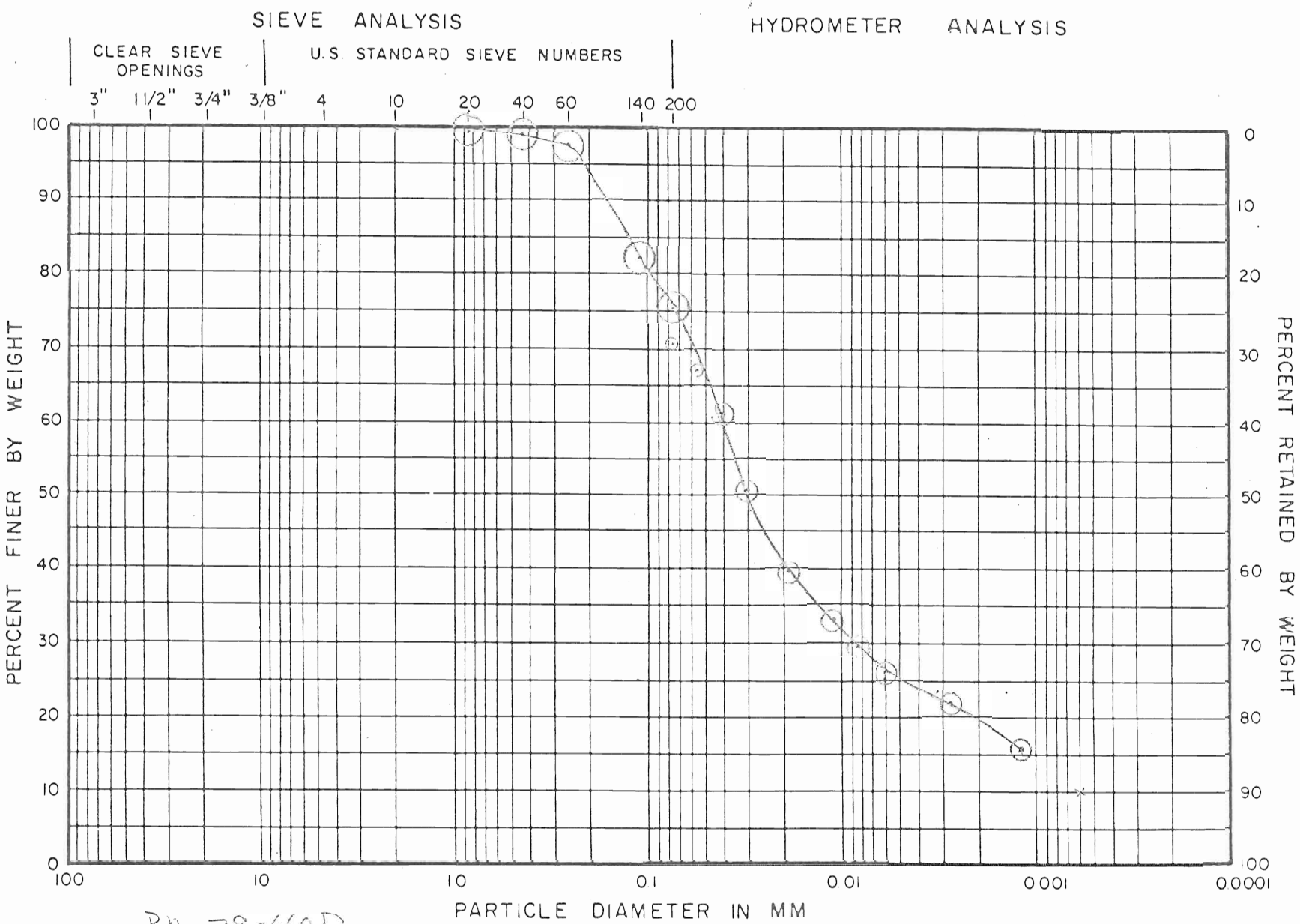
CBL 1-25-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC.%
Cedar Cr	Sec D-D	Gravel and sand, silty	GM	.015		
	Left bank					

ORIGINAL

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



Rm 78-660D

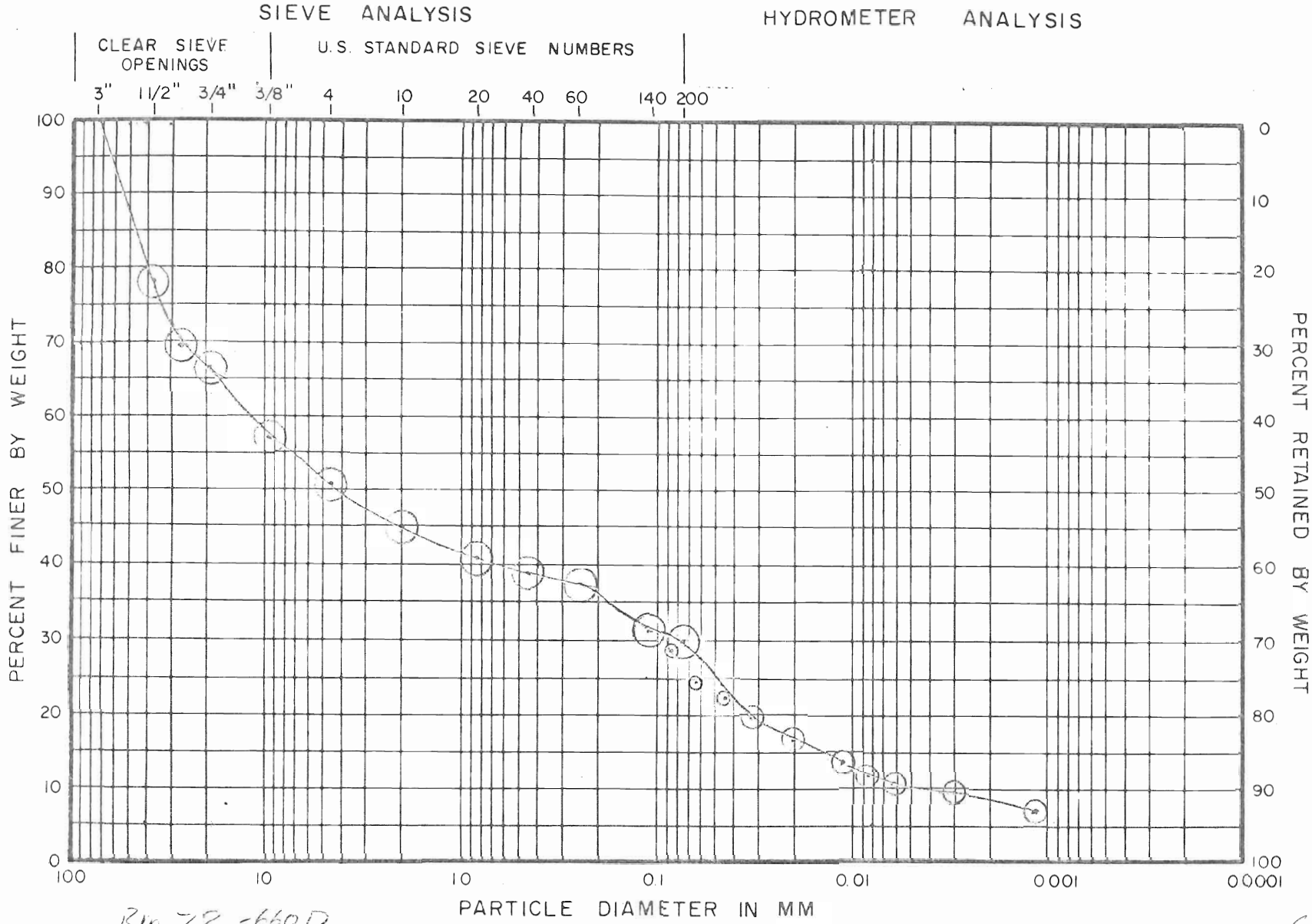
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Cedar Cr	Sec D-D	Silt, sandy, clayey	ML	≈.0006		
	Right bank					

CBL 1-25-80

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



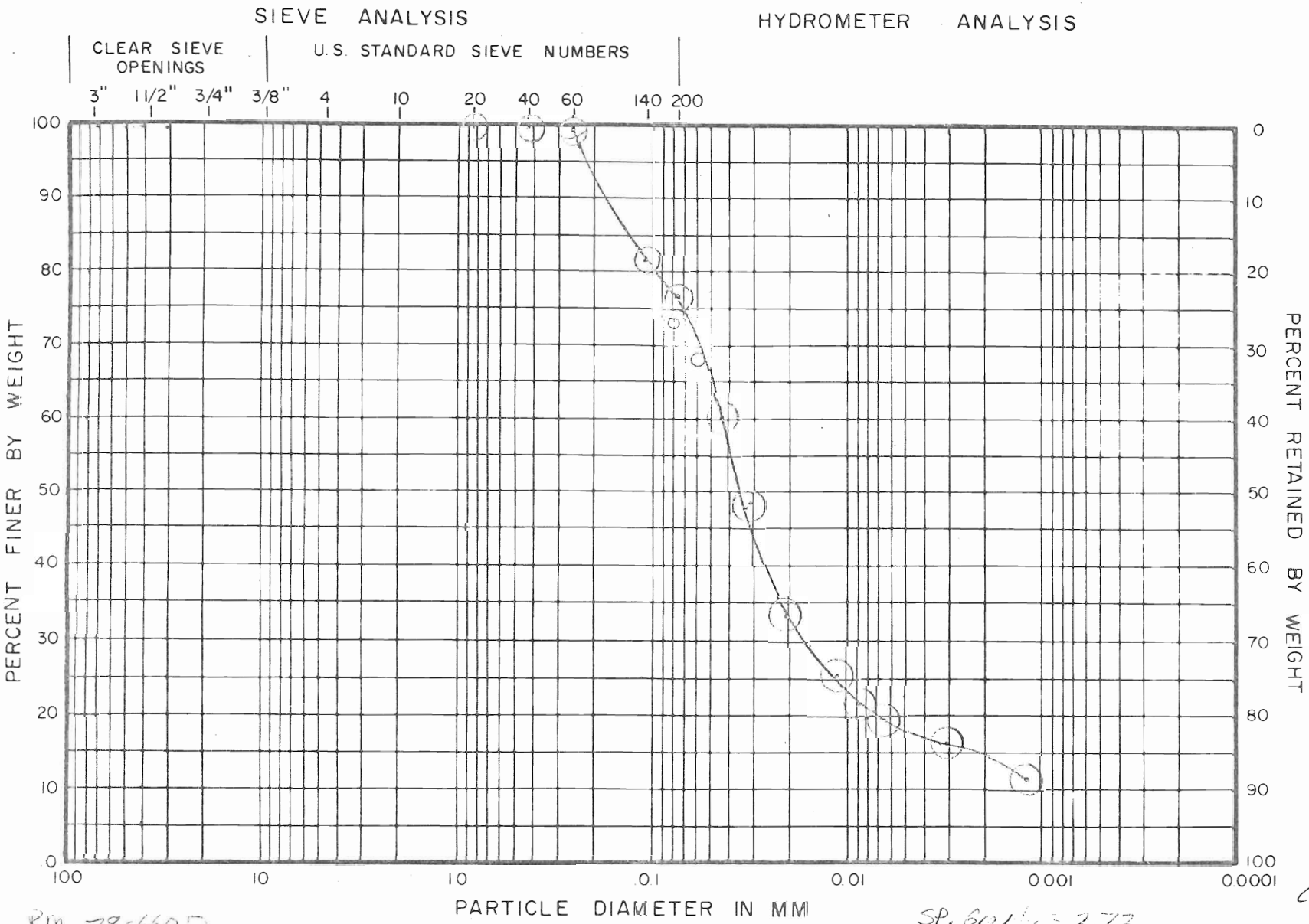
Rm 78-660D

CBL 1-25-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC,%
Cedar Cr	Sec D-D Bed	Gravel and sand, silty	GM	.005		

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RM 78-660D

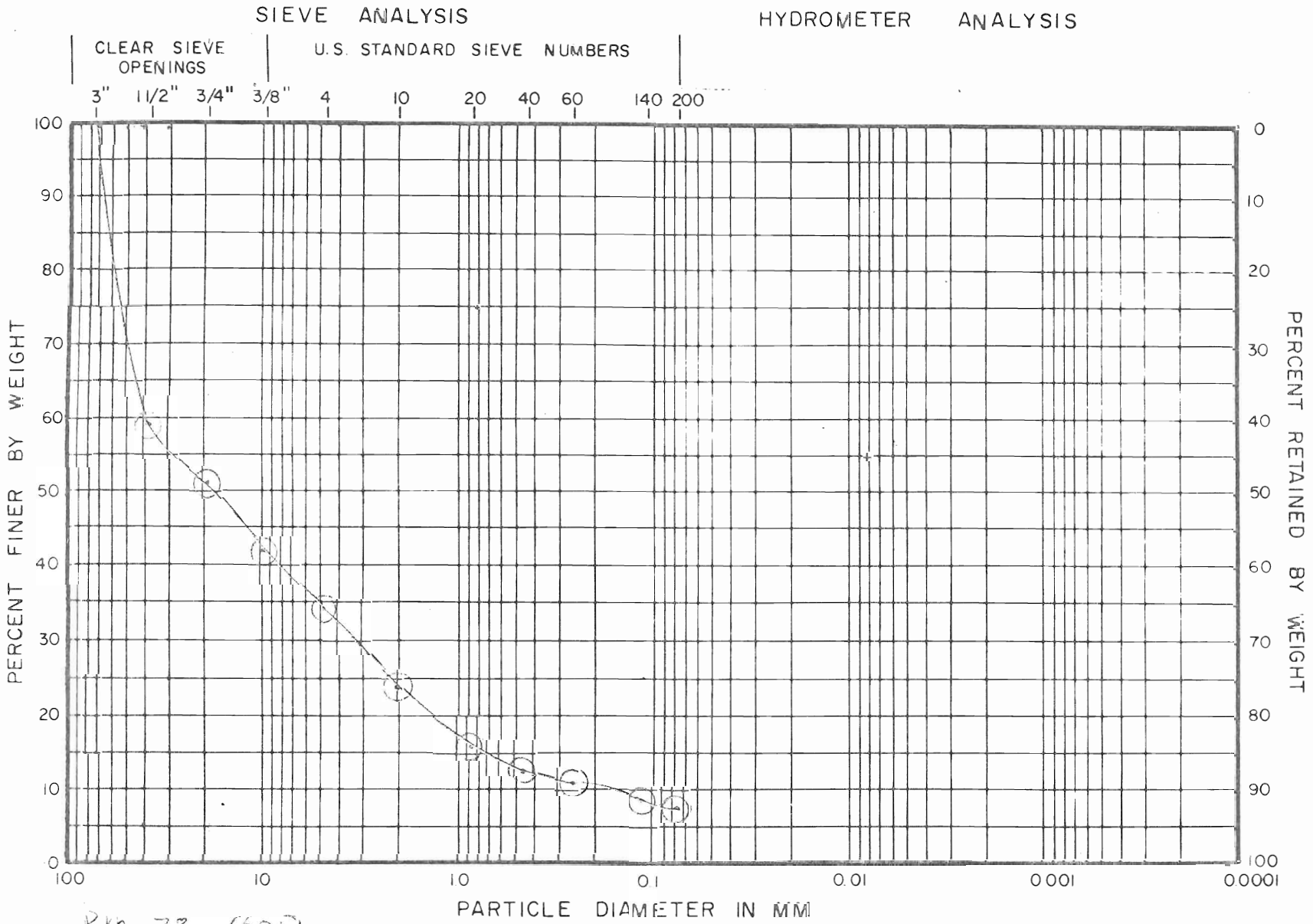
SP. Gr. = 2.72

CBL
12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	W.C.,%
Dry Cr	[illegible]	Silt, sandy, sl. clayey	ML			

DRAPER OIL CNLA



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

IDAHO DIVISION OF HIGHWAYS

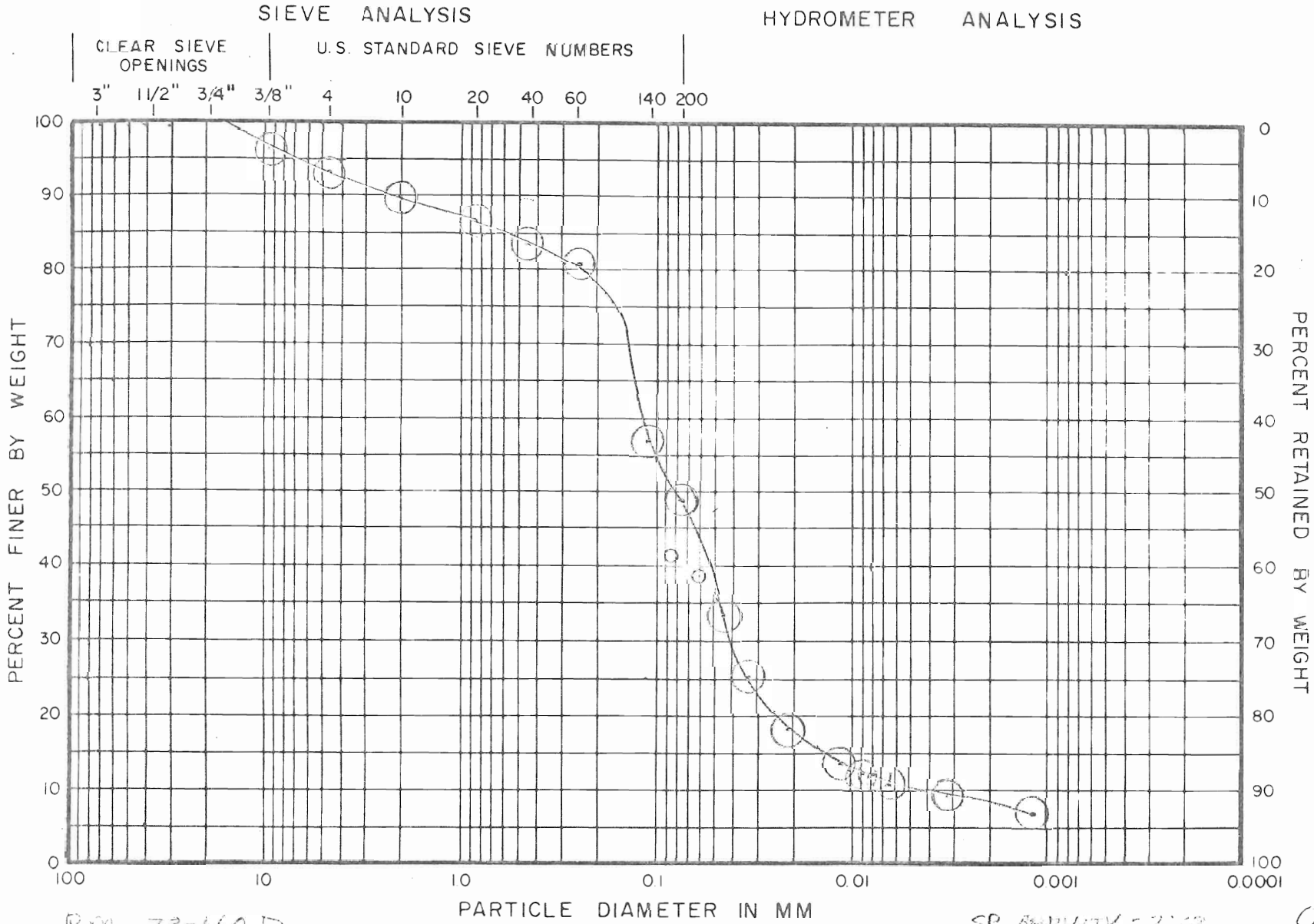
Rm 78 -660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC.%
Dry Cr	Sec A-A Rad	Gravel, sandy coarse	GW			

CBL 12-20-79

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RM 72-650 D

SP. GRAVITY = 2.72

CBL 12-24-79

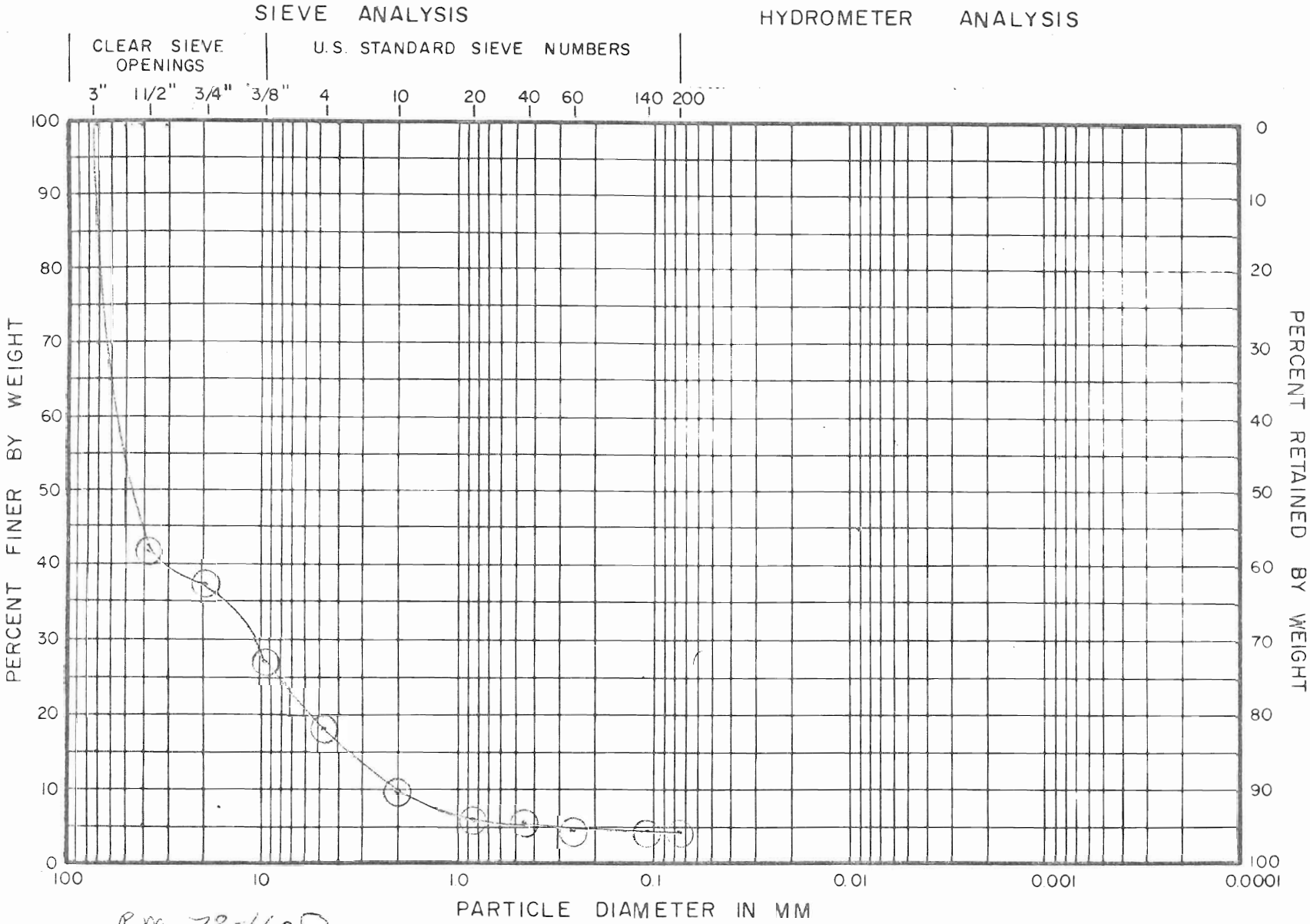
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Dry Cr.	Sec E-E					
	Bank	Sand (occ. gravel) fine & silty	SM (SW-SC)			

DRAPILONIA

DRIPDONLA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

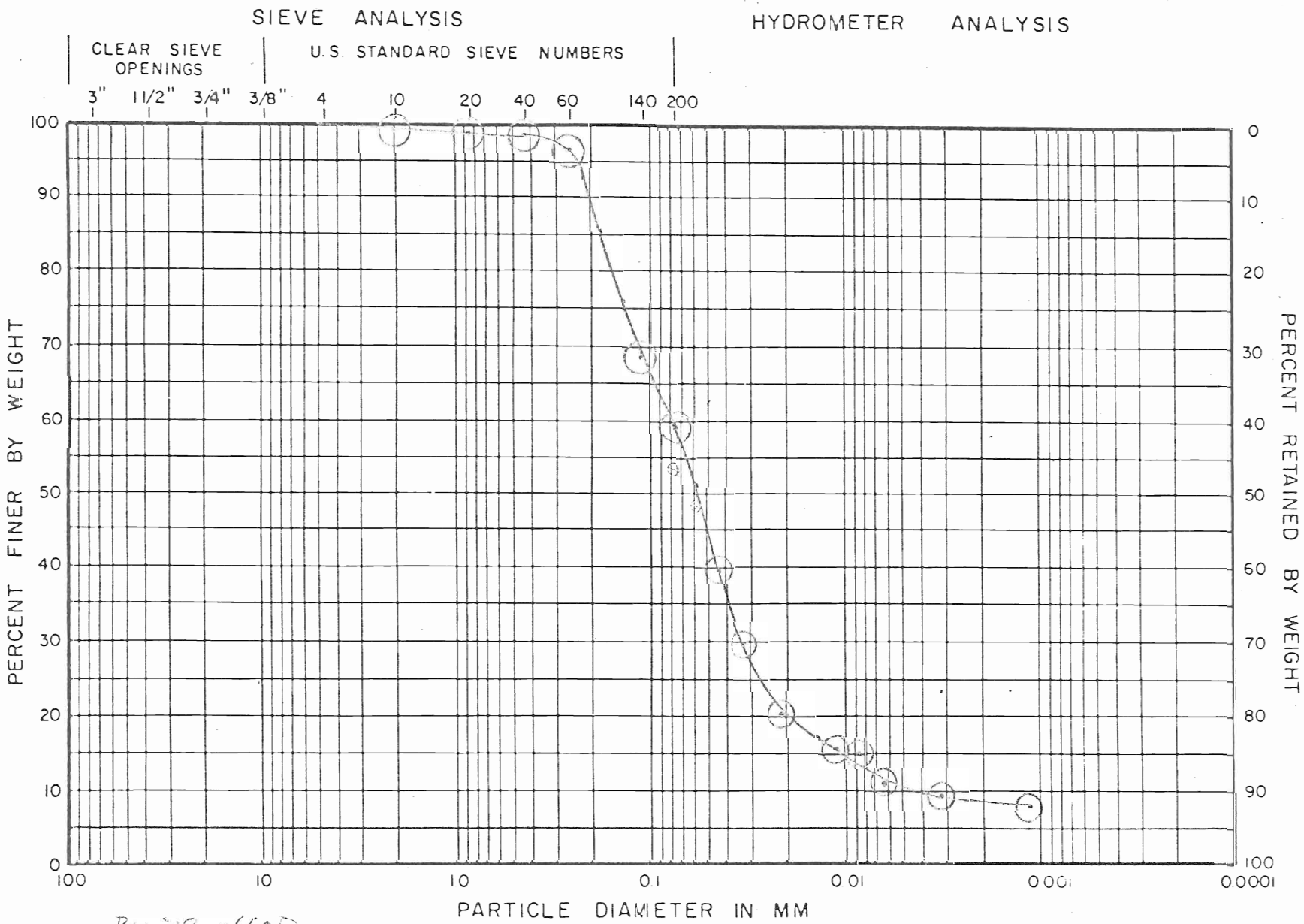


Rm 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC,%
Dry Co	Sec E-E Bed	Gravel, ~~sh~~ sandy, coarse	GP			

CL 12-24-80



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

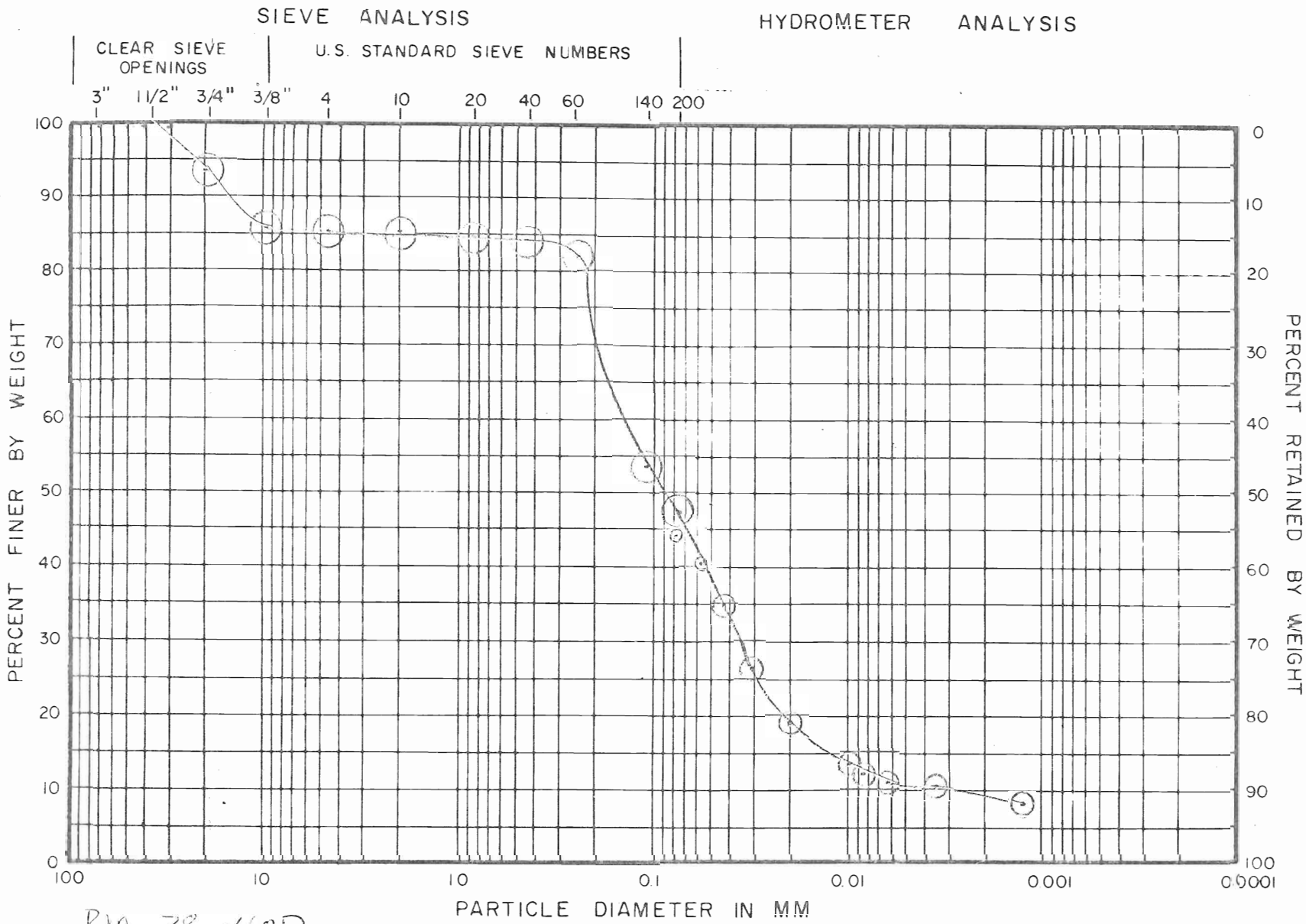
Rm 78 -660D

CBL
1-25-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Gala Cr	Ser 11-21		ML-SM	.005		
	Comp. cook	Silt, sandy, sl. clayey				

VINDIRDILDNIA



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

D'APPOLONIA

Rin 78-660D

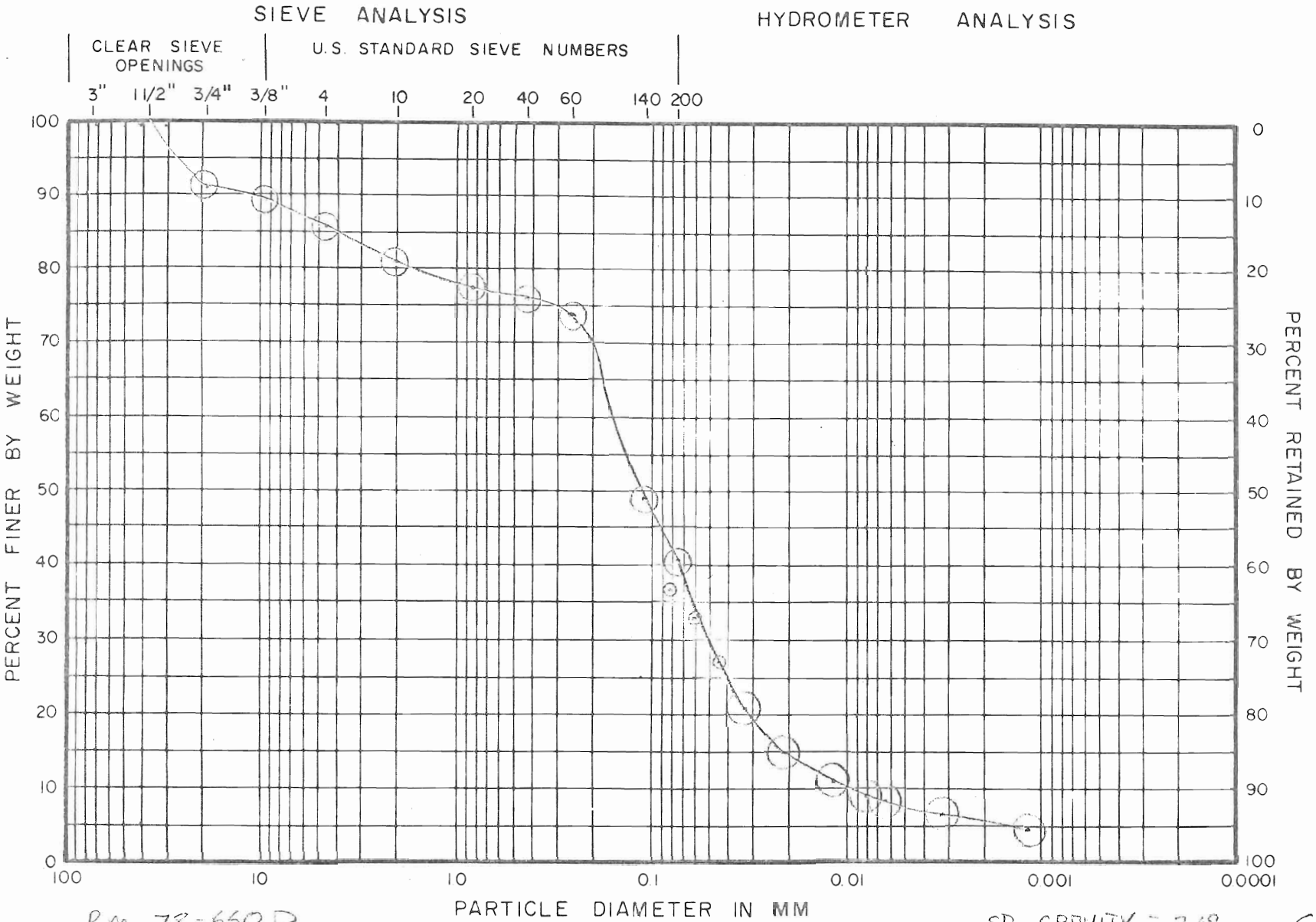
CBL
1-25-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	W.C. %
Gale Cr	Sec 11 Bed	Sand, v. silty, occ gravel	SM-ML	.005		

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RM 78-660 D

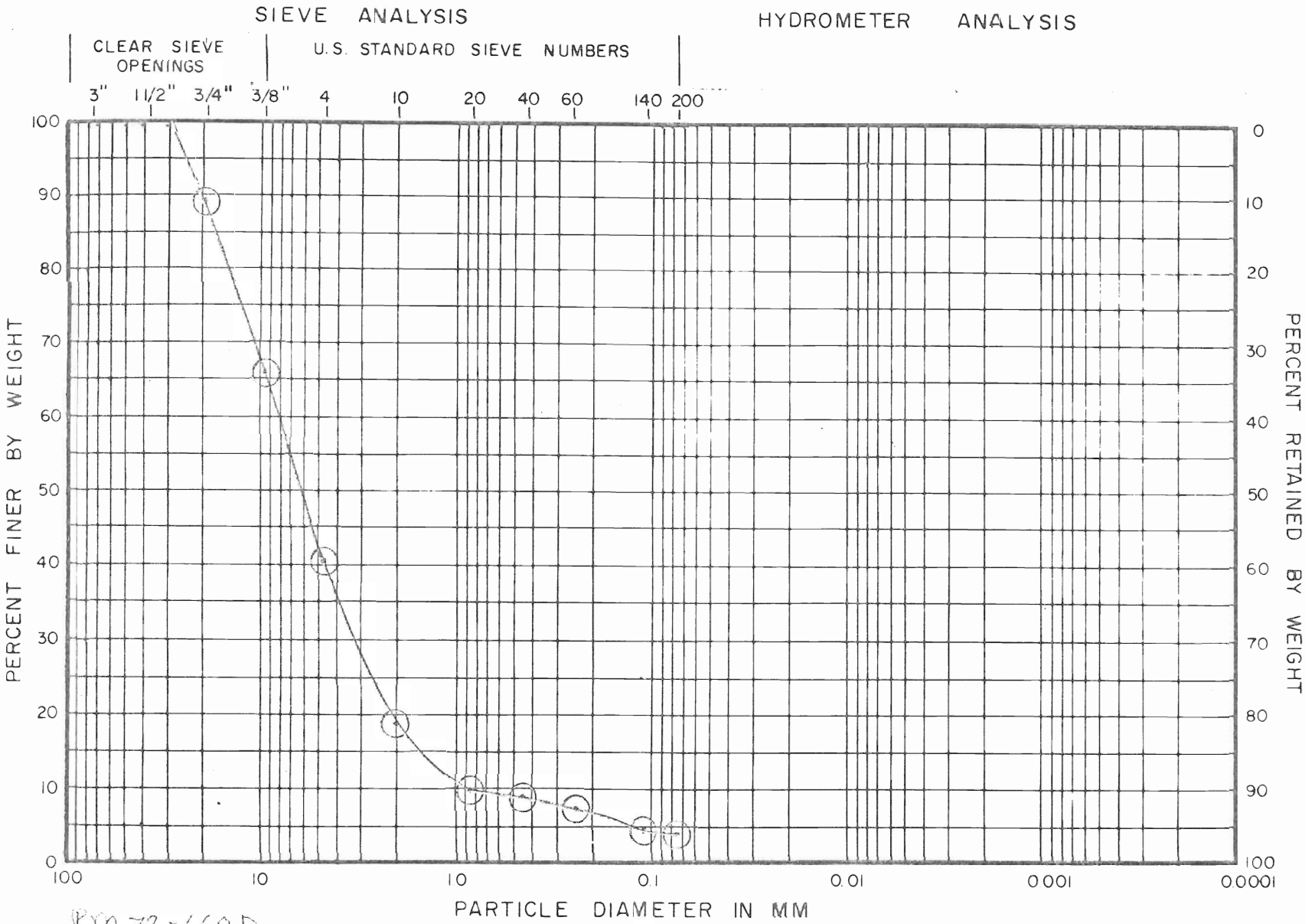
SP. GRAVITY = 2.69

CBL
12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Gale Cr	Sec B-B Bank	Sandy and gravel, very silty-clayey	GM			

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



PYN 72-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

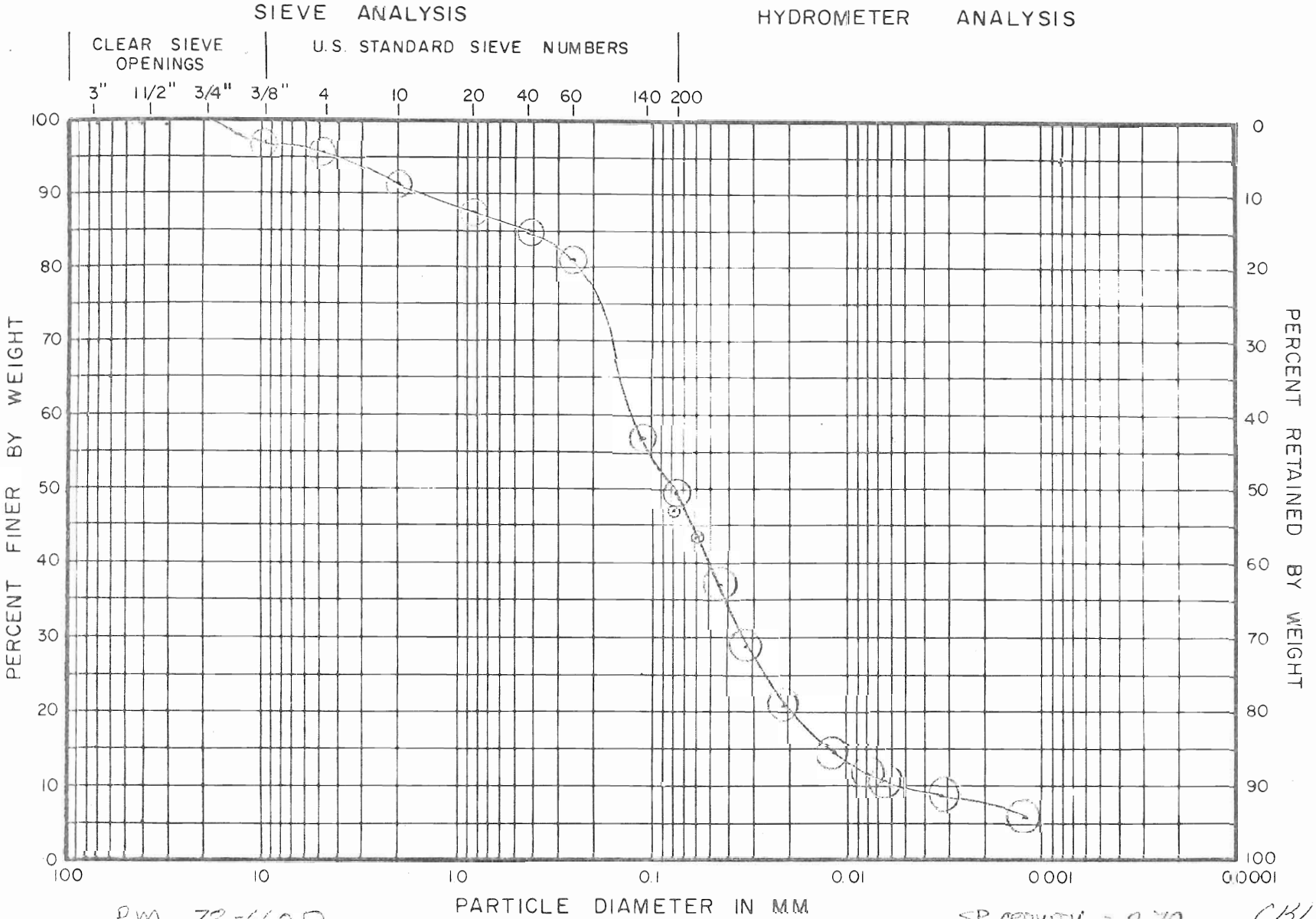
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Gate C1	[illegible]					
	[illegible]	Sand and Gravel - Coarse	GW-GP			

CBL 12-29-77

D2-23

DAMPIDONYA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RM 78-660 D

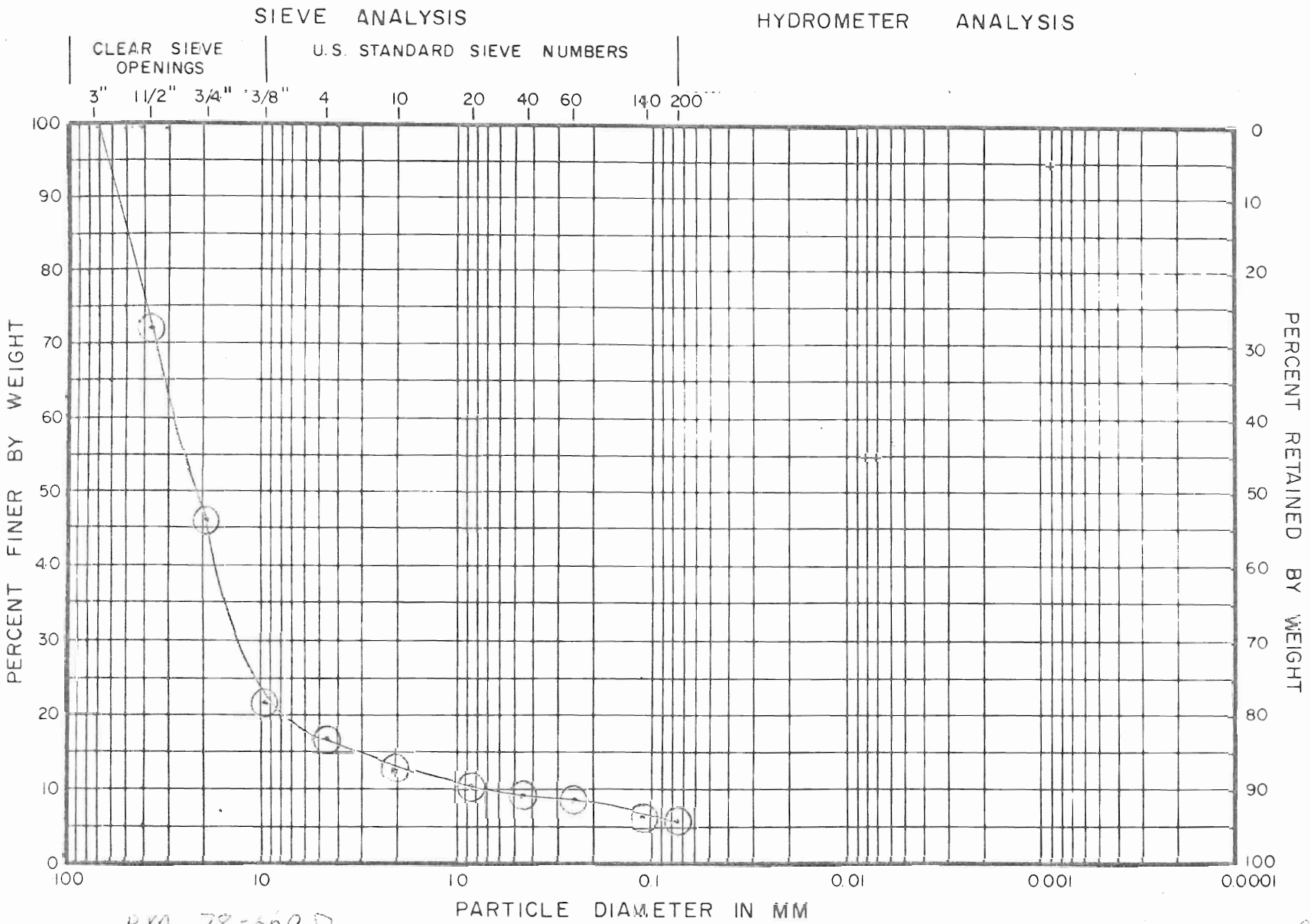
SP. GRAVITY = 2.70

CBL. 12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Guier	See E-E Form 5	Sand, v. silty	(SM) SM			

DAMPIDONLA



RM 78-660 D

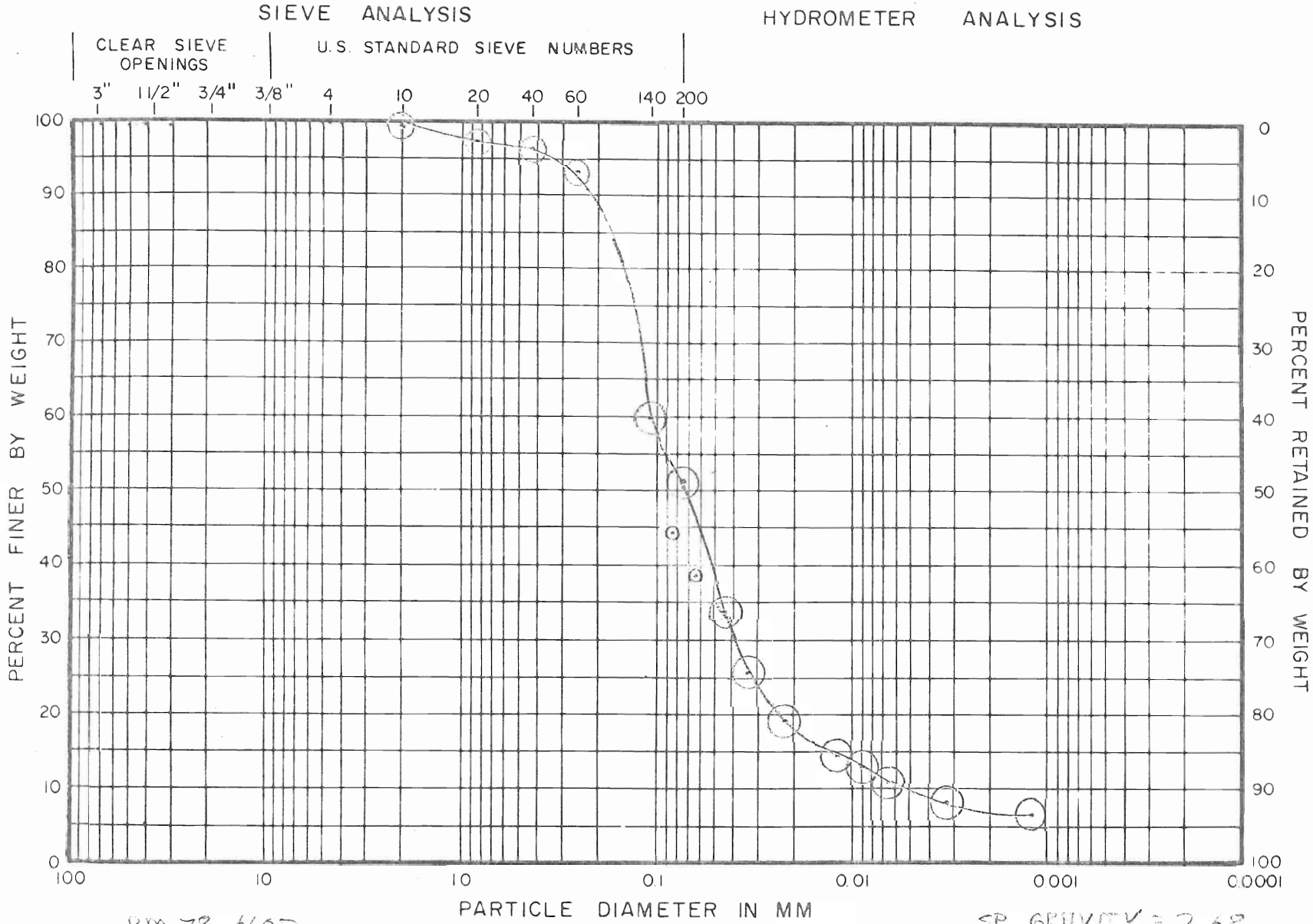
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{60}	C_u	W.C.%
Gate Cr	Sec E-E					
	Bed	Gravel, sl. sandy	GW-GP			

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

DAMPIONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



PM 78-660D

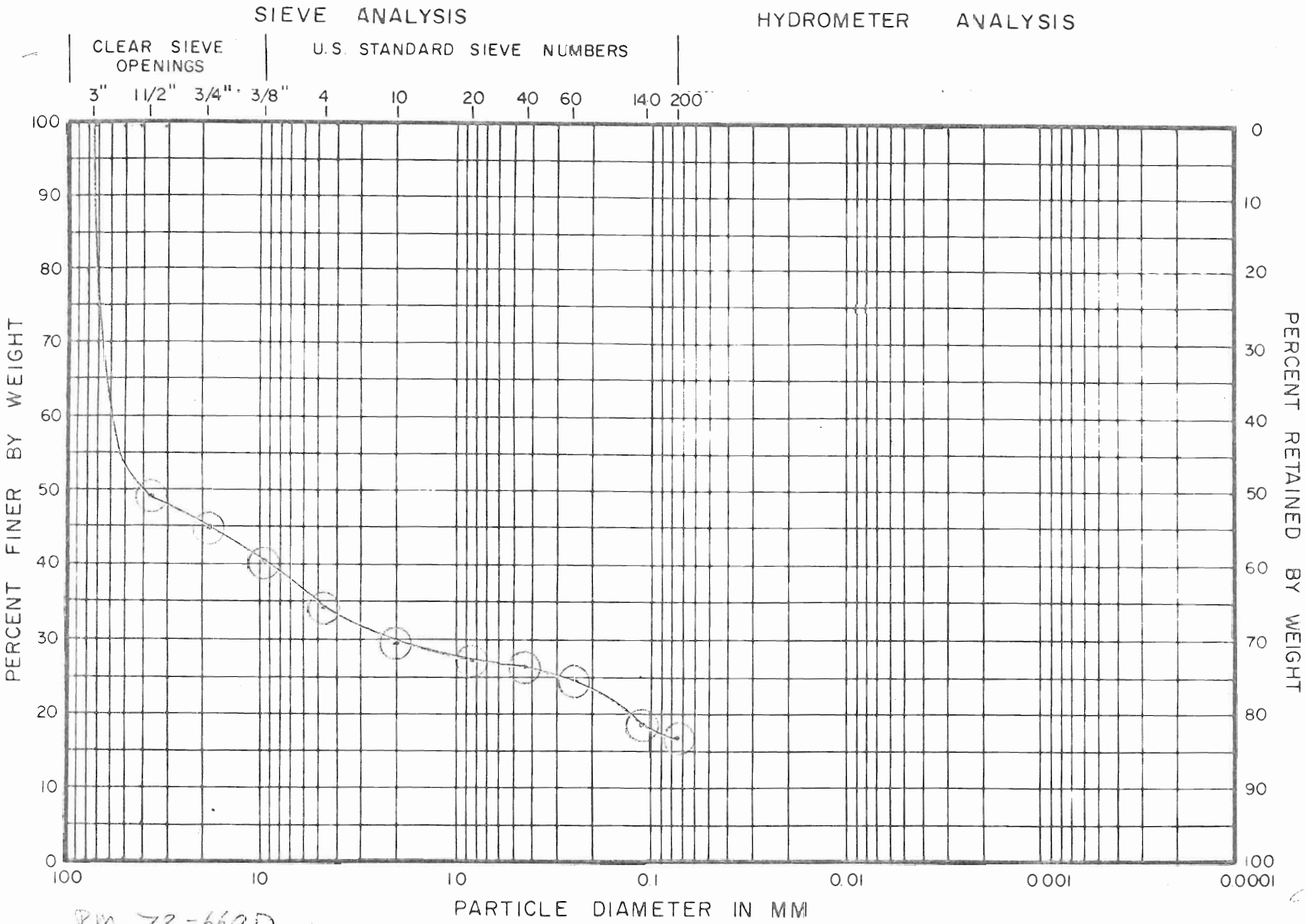
SP. GRAVITY = 2.68

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC.%
Pacen						
Tecco	See A-4	Sand, v silty	SM-ML			
	Bank					

CDL 12-28-78

DRAPIDONIA



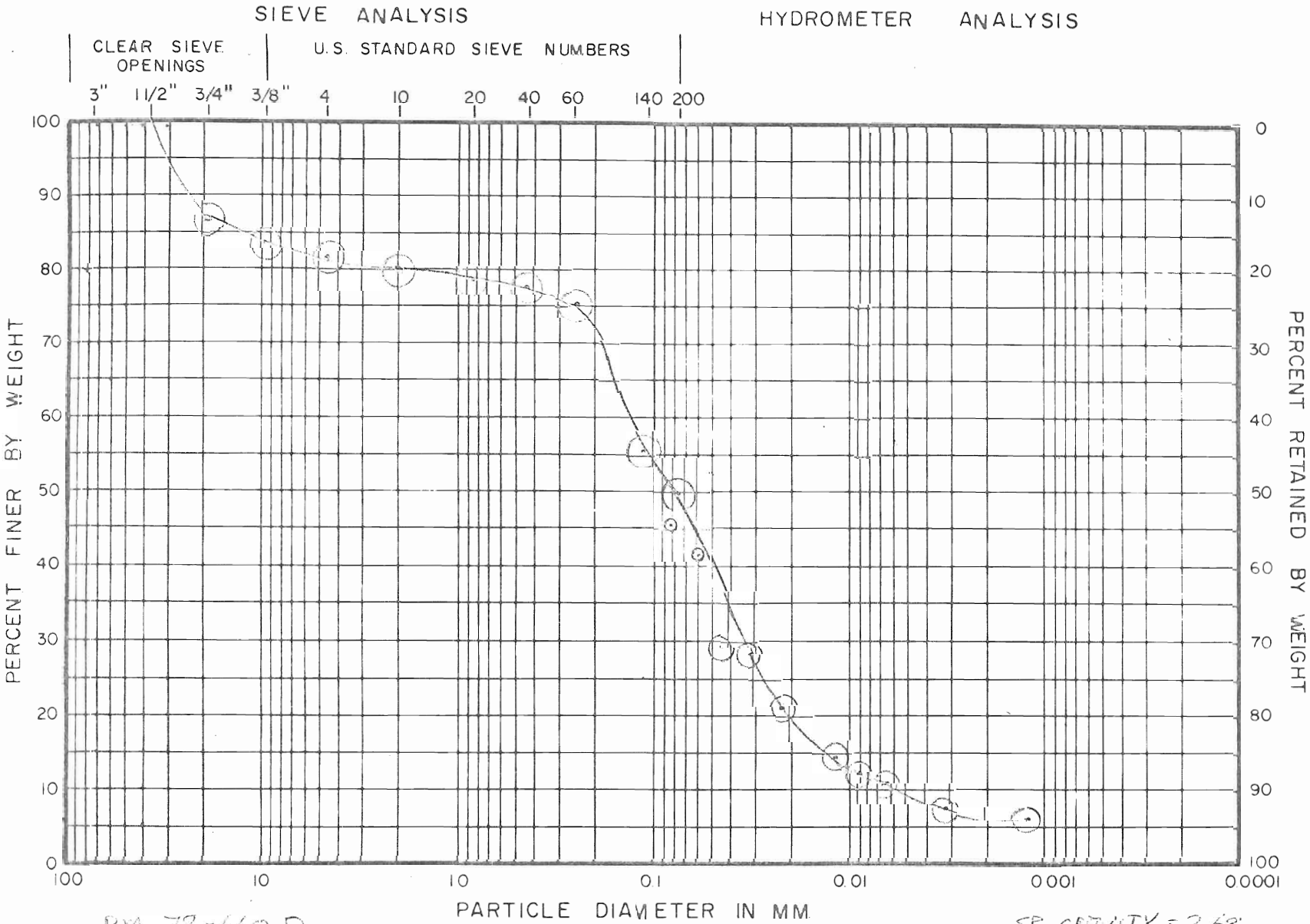
D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

RM 72-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Poker	Sec 11-A					
Test 22	Bed	Gravel, sandy, sl. silty	GW (GM)			
Cr						



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

RM 78-660 D

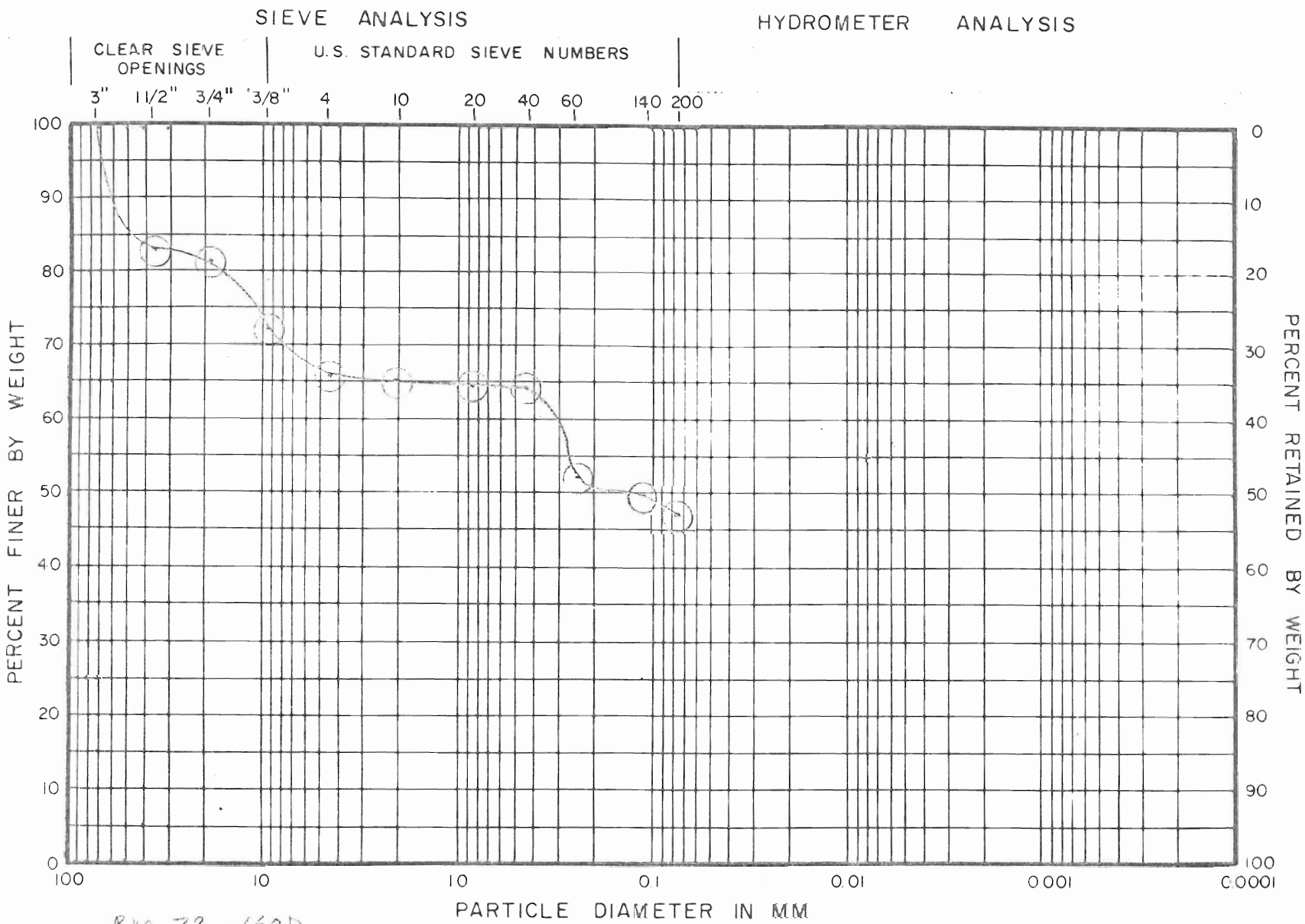
SP. GRAVITY = 2.68

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Pond						
Tech	see B-R	Gravel, sand, v. silty, sl clayey	SM-ML			
	Bag					

CBL 12-27-77

INDIANOLA



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

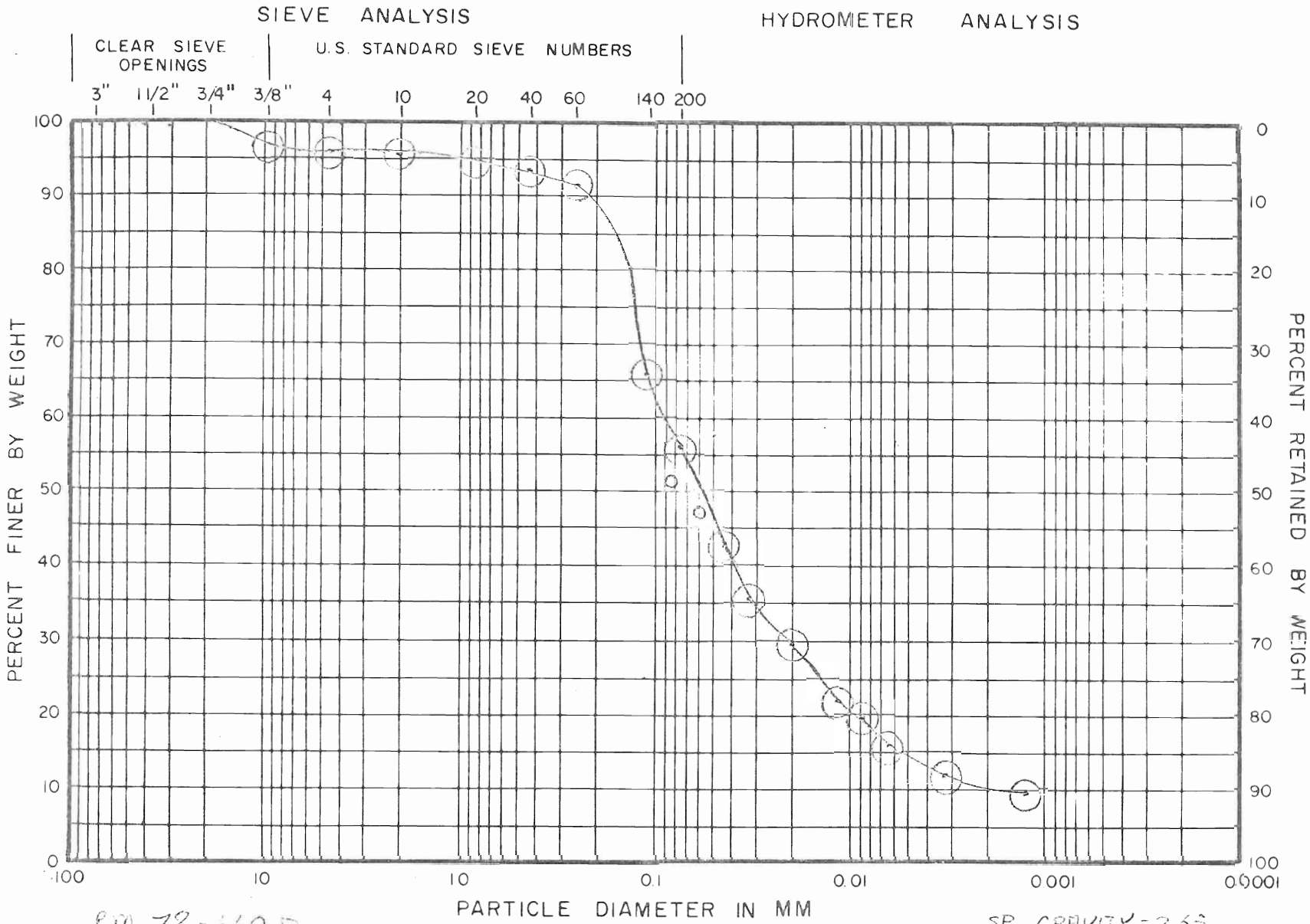
DRAPIDONIA

RM 78 -660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	W/C, %
Pokes						
Teeter	See B-B	Gravel-sand	GW-GP			
Cr	Bed					

CBL
12-24-79



RM 78-660 D

SP. GRAVITY = 2.62

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Pokers	Sec. C-C					
Tech 22	Bank	Sand, occ gravel, v. silty, sl. clayey	SM-ML			

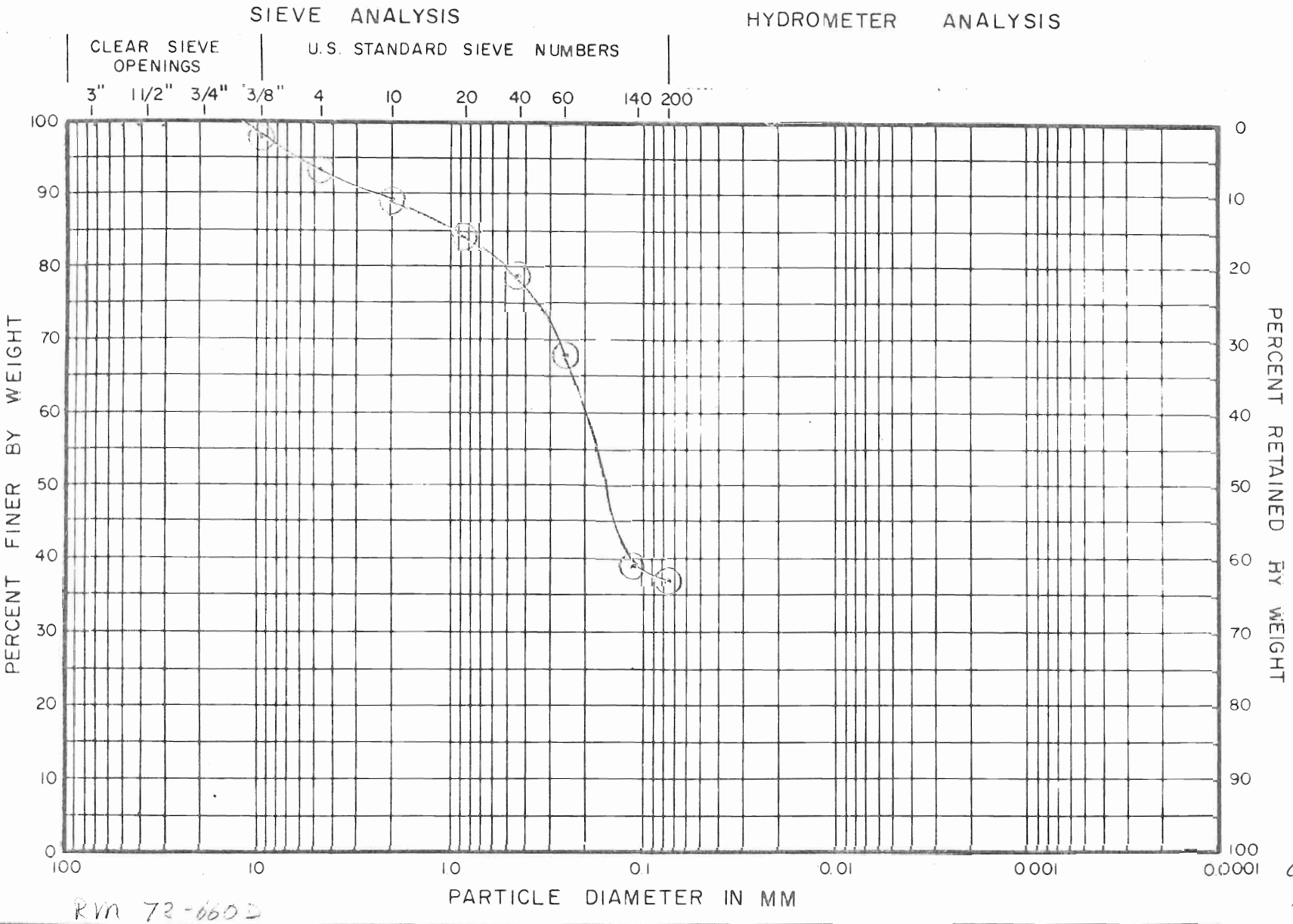
GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

DRAPOLONIA

CBL

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RVM 72-660D

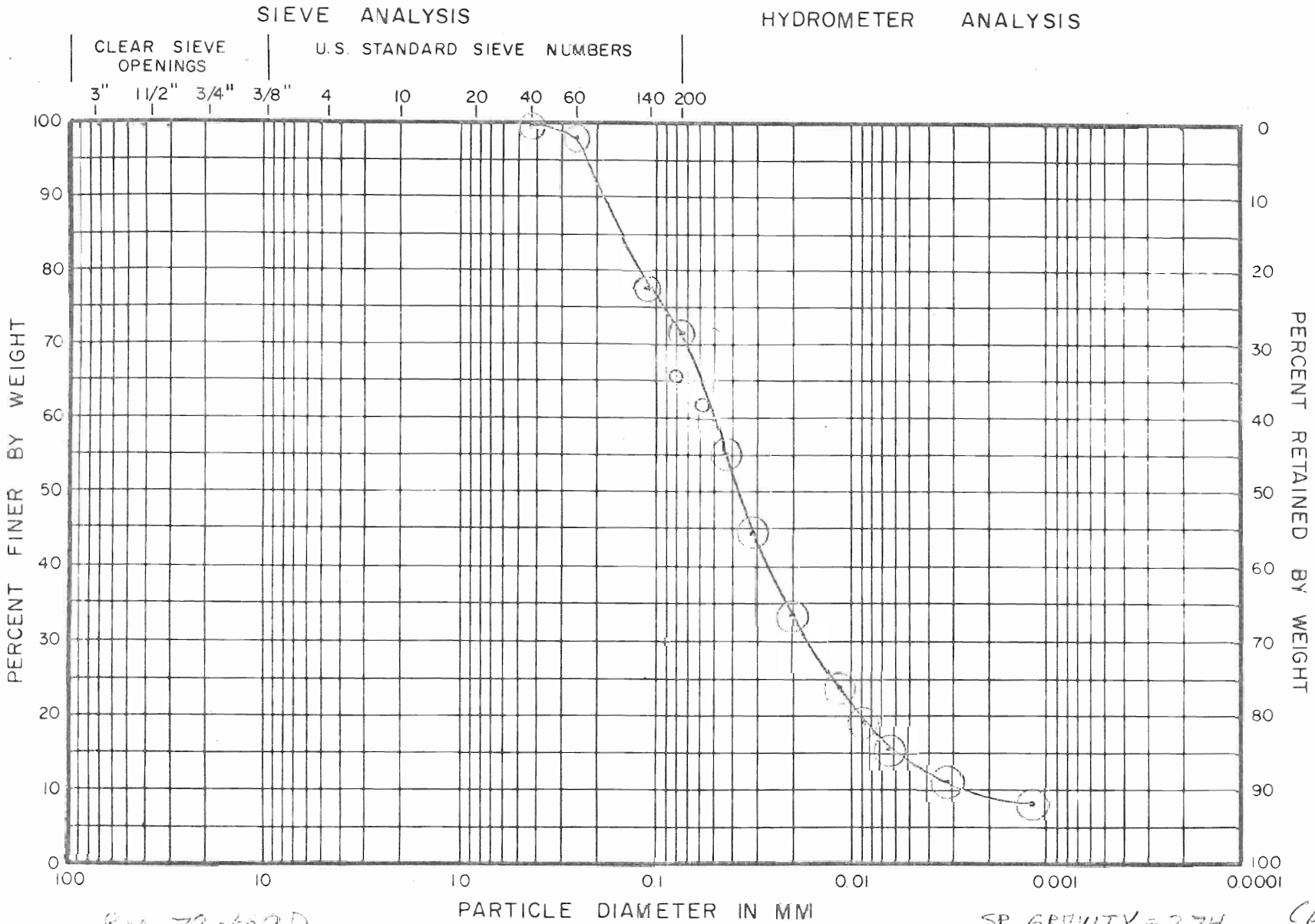
CBL
12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Parker						
Tenaha Cr	Sa C-C	Sand, med grained, silty clayey	SW			

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RM 72-500 D

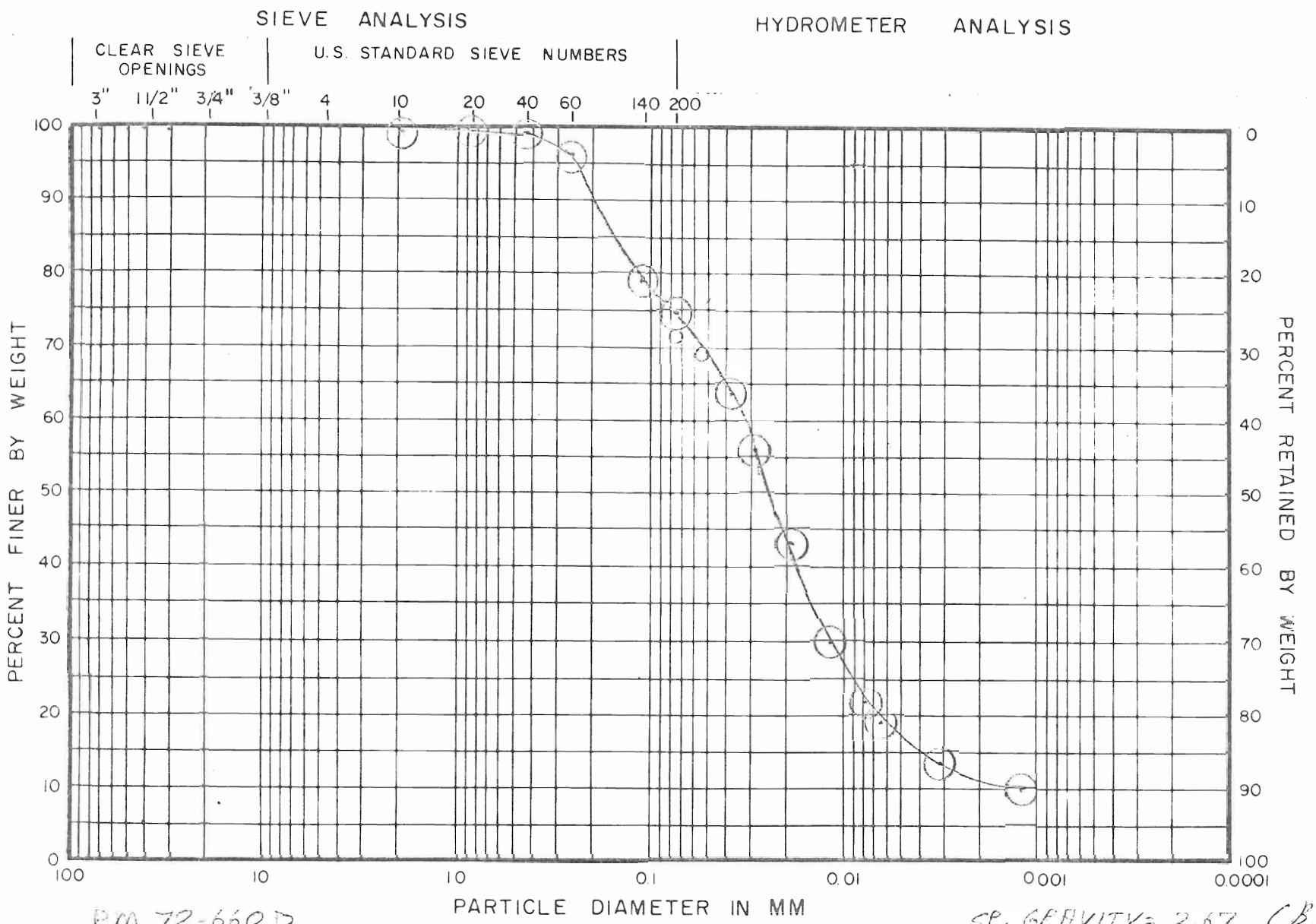
SP. GRAVITY = 2.74

CBL 12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Pokon						
Dim Cr	Spr 1-2	Silt, sandy, sl. clayey	ML (SM)			
	Pan C					

22-20



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

PM 78-650 D

SP. GRAVITY = 2.67

CBL 12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

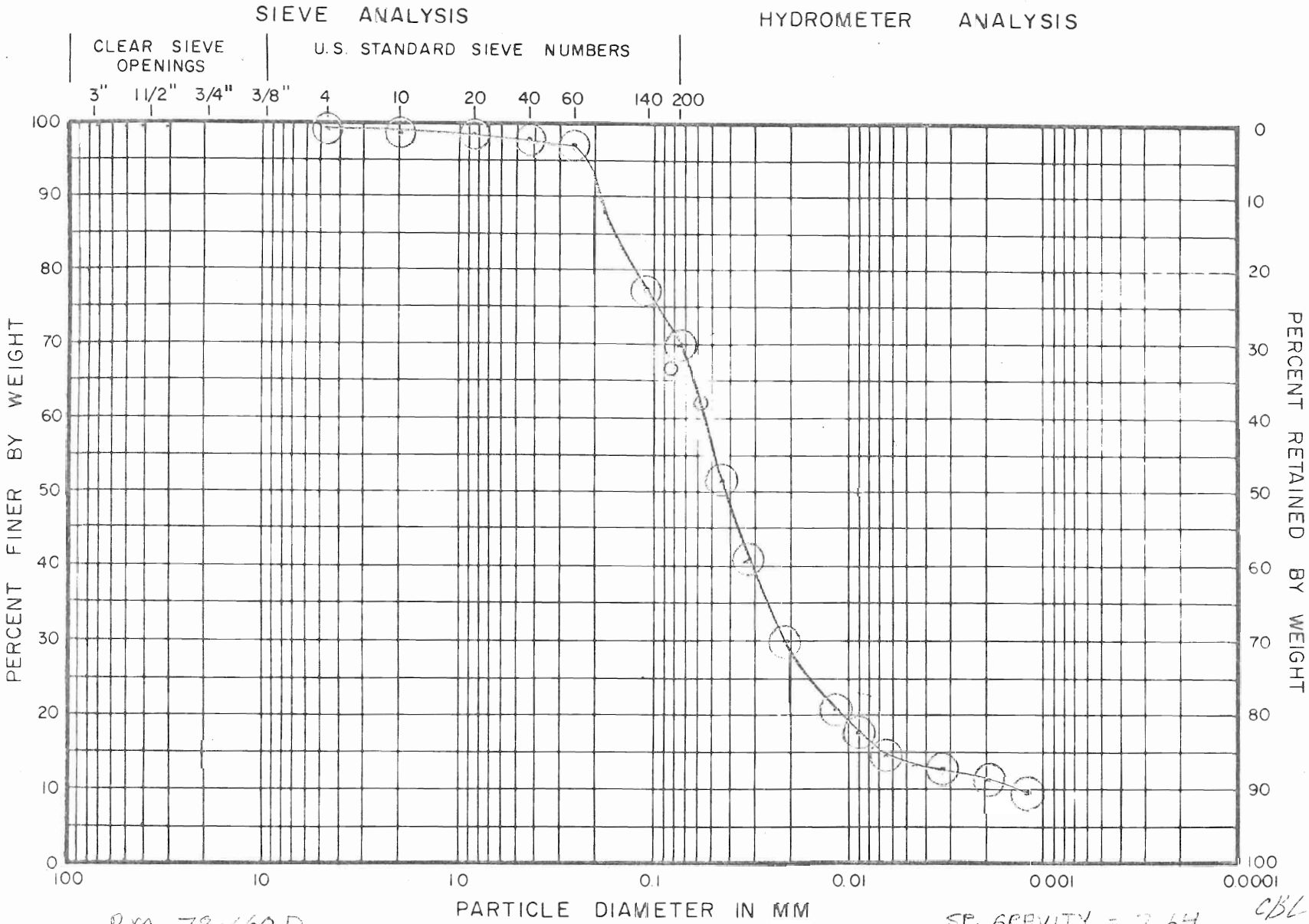
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Bore						
4 in Cr	A-A Sec. Bed	Silt, sandy, sl. clayey	ML (SM)			

D2-33

DAMPIERO/DNLA

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



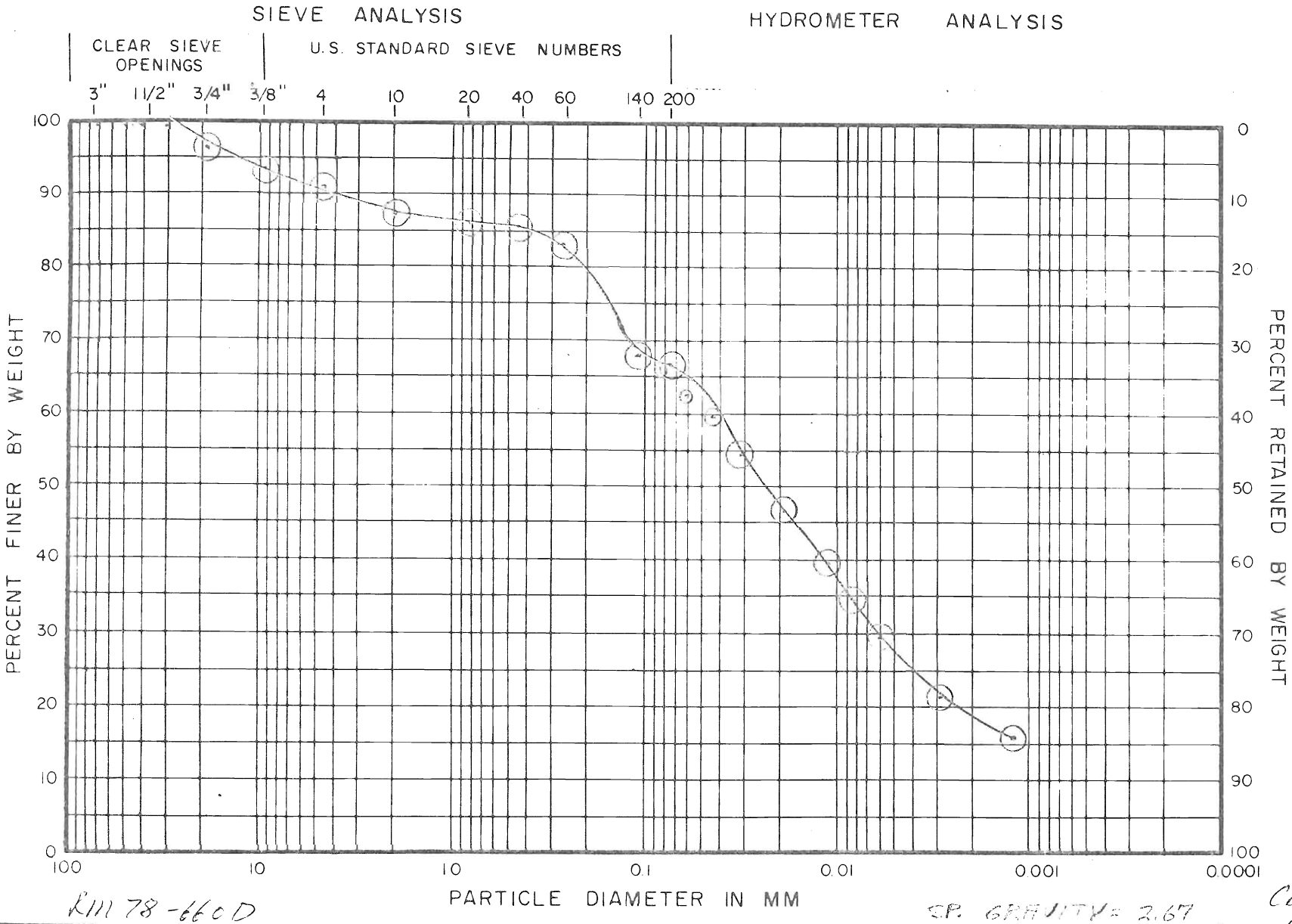
RM 72-660 D

SP. GRAVITY = 2.64

CBL 12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Pa 2021						
Jim Cr	Sac B-B	Silt, v. sandy, sl. clayey	val (sm)			
	Ex 6					



DAMPIDONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

RM 78-660 D

SP. GRAVITY = 2.67

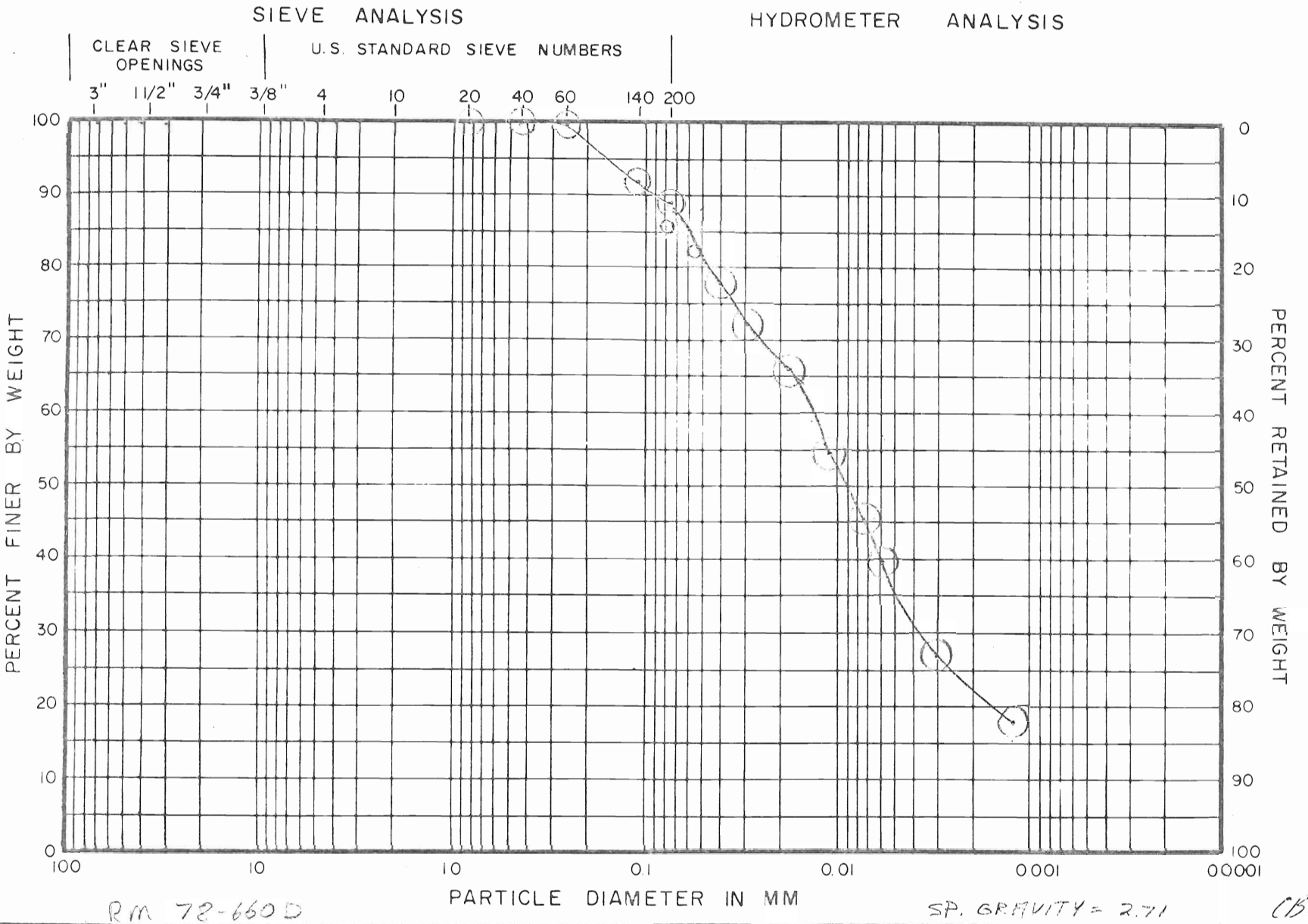
CBL
12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Pocket						
Zone C	Sec. Rock	Silt, sandy, clayey	ML (CH)			
	Pocket					

DAMPOLDNIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RM 78-660 D

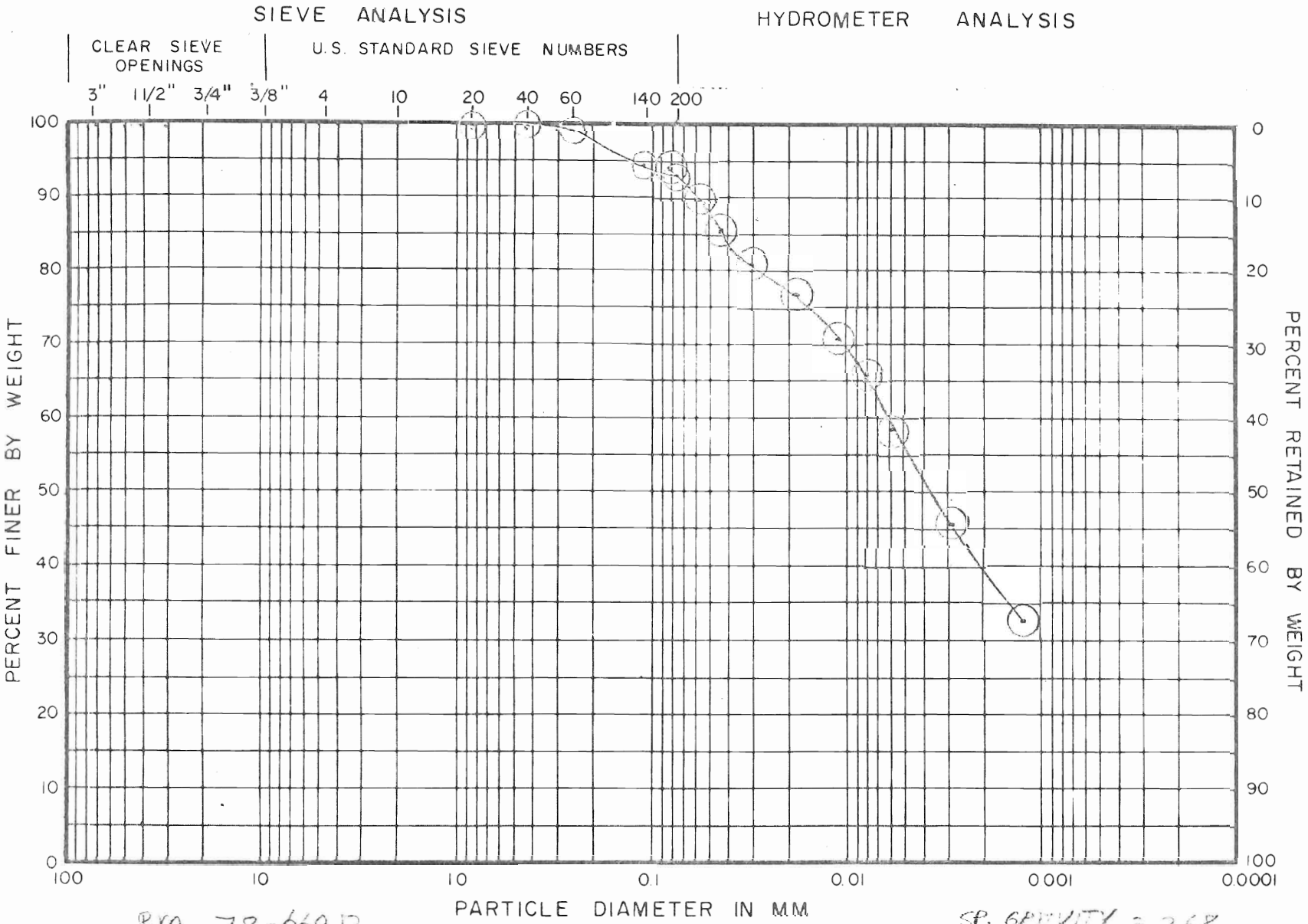
SP. GRAVITY = 2.71

CBL
12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC,%
Poker						
Sim Cr	Sac C-C	Silt, sl sandy, clayey	ML-CL			
	Bon C					

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RM 78-660 D

SP. GRAVITY = 2.68

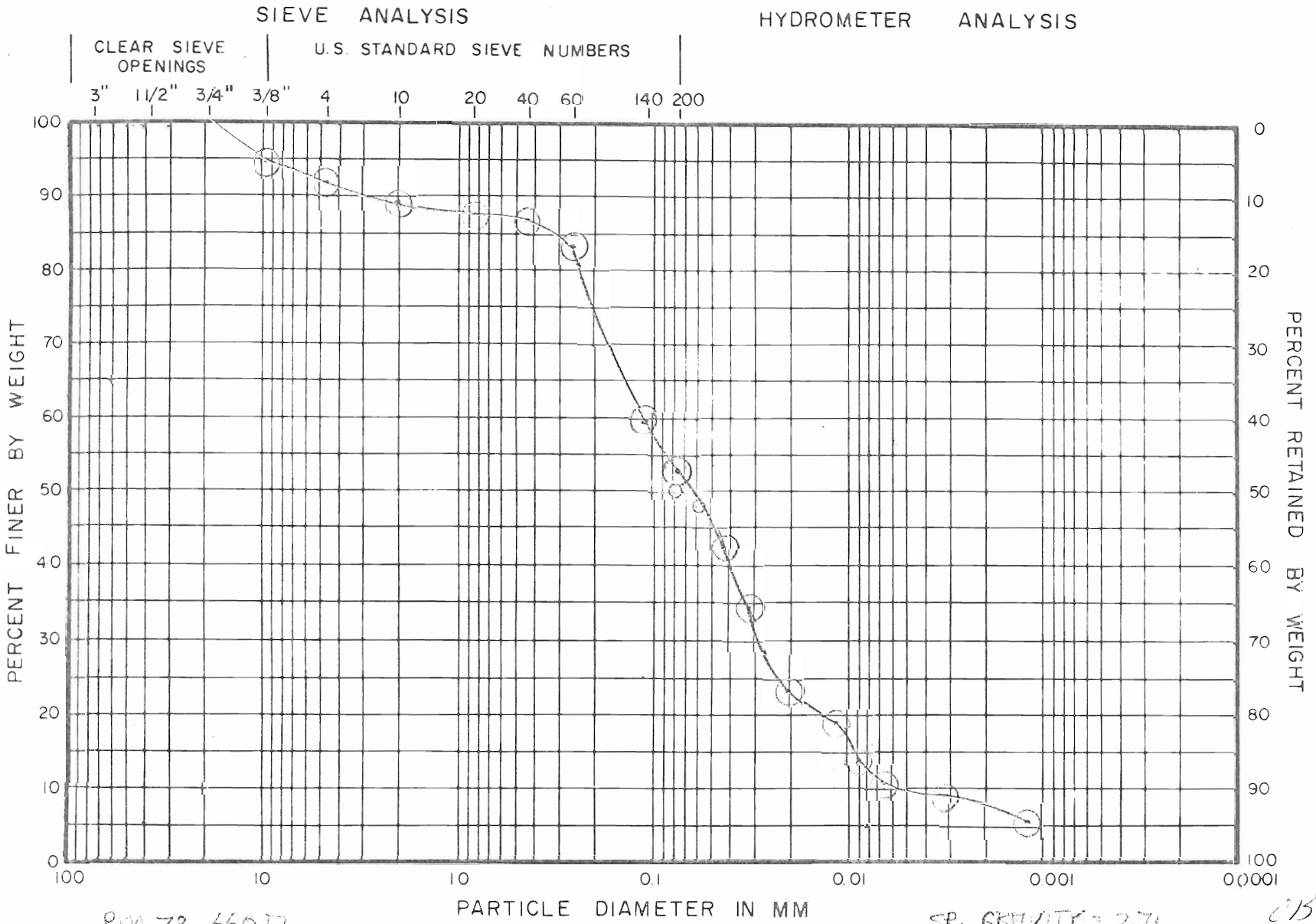
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Parker						
Sim Cr	Sec C-C 6.0'	Silt, sl sandy, vi clayey	ML-CL			

CBL
12-24-79

D2-57

IDEAPOLONIA



RM 78-660D

SP. GRAVITY = 2.71

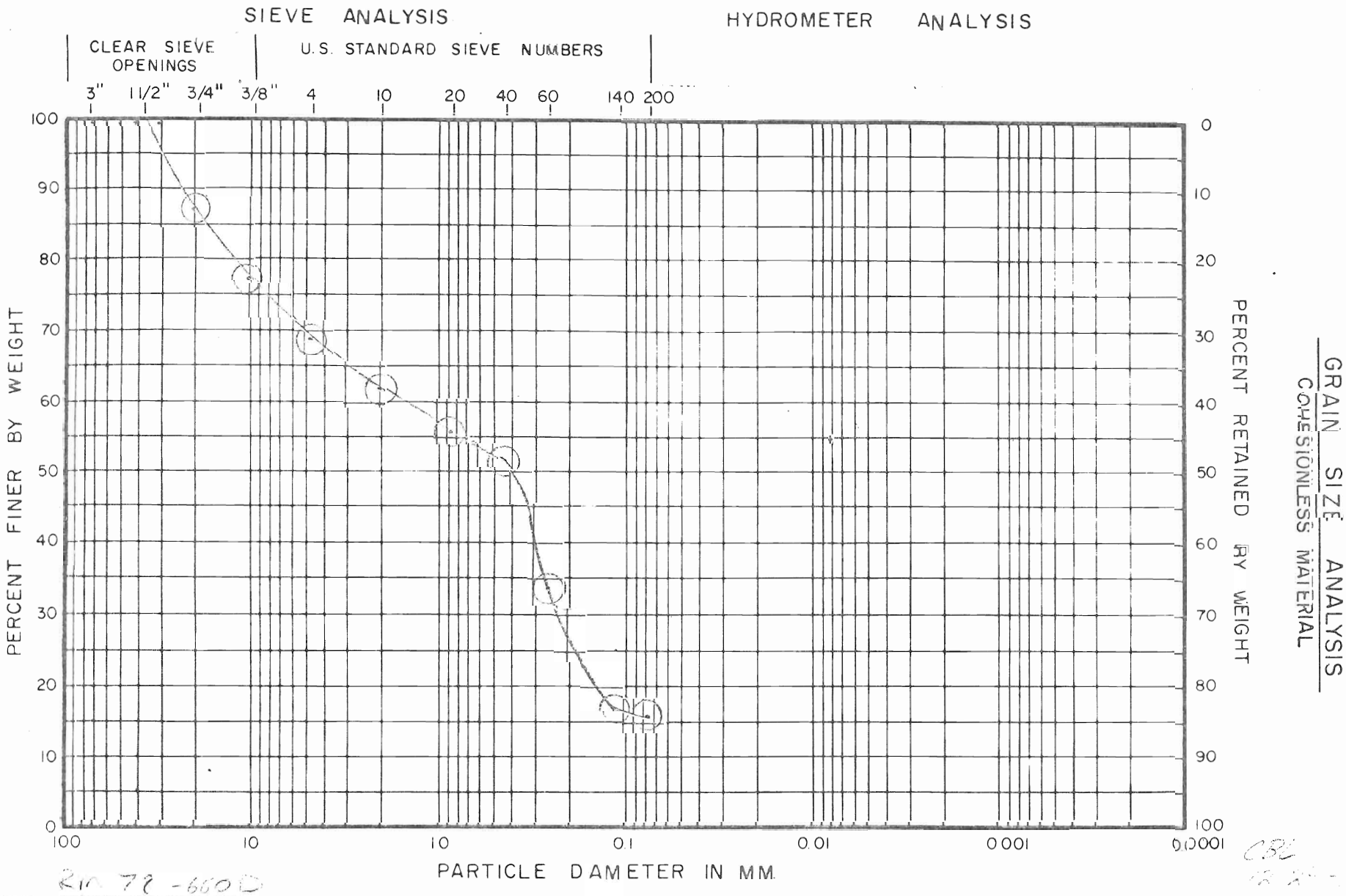
CBL 12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Poker Jim Cr	Soc D-D Bank K	Sand, fine, v. silty	SM-ML			

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

DRAIPOLONIA



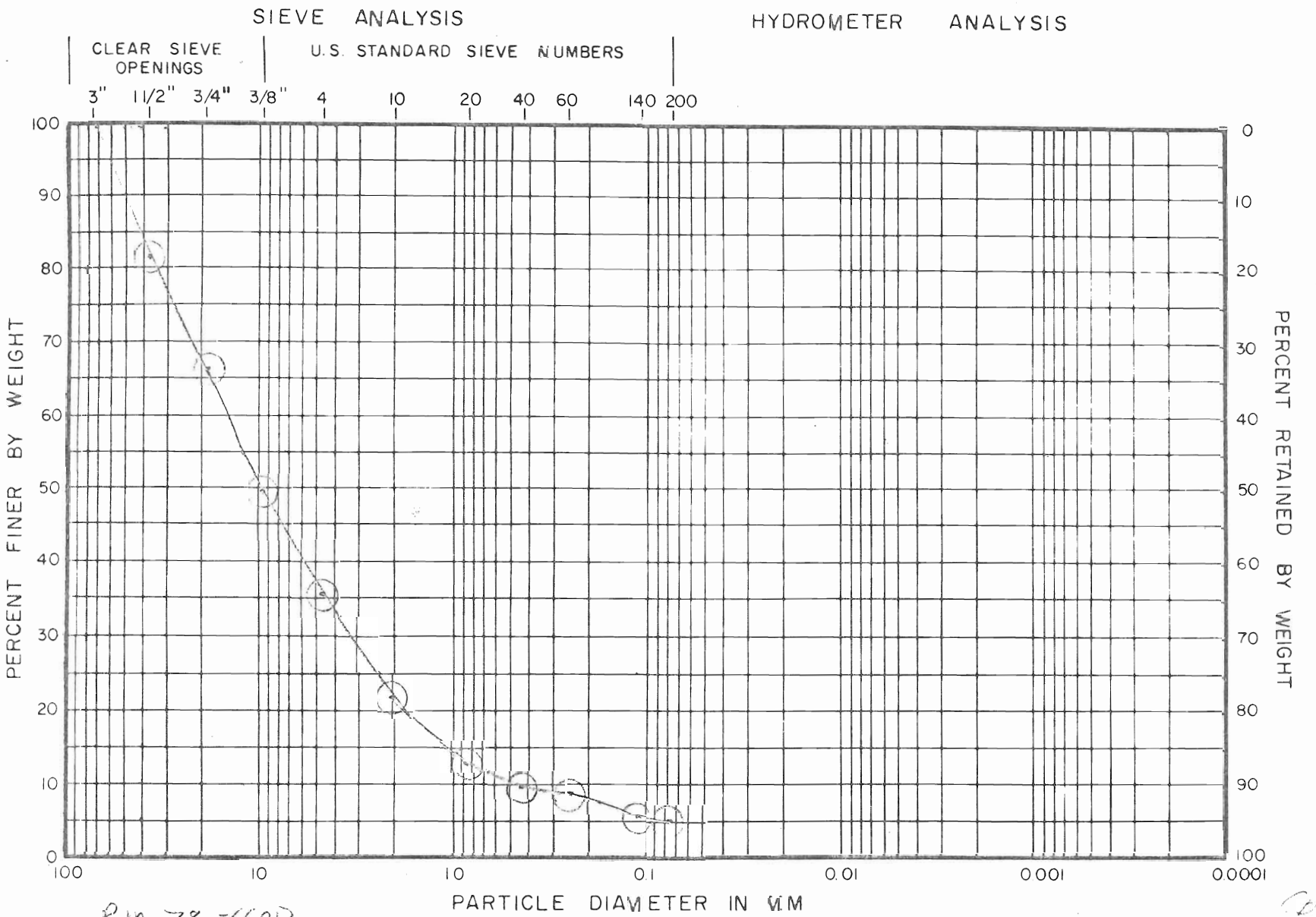
Rin 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	W.C. %
Pokey Jim Cr	Spc D-D Sieve 8 3/4	Sand and Gravel, well graded,	SW-SM			

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

D'APPOLONIA



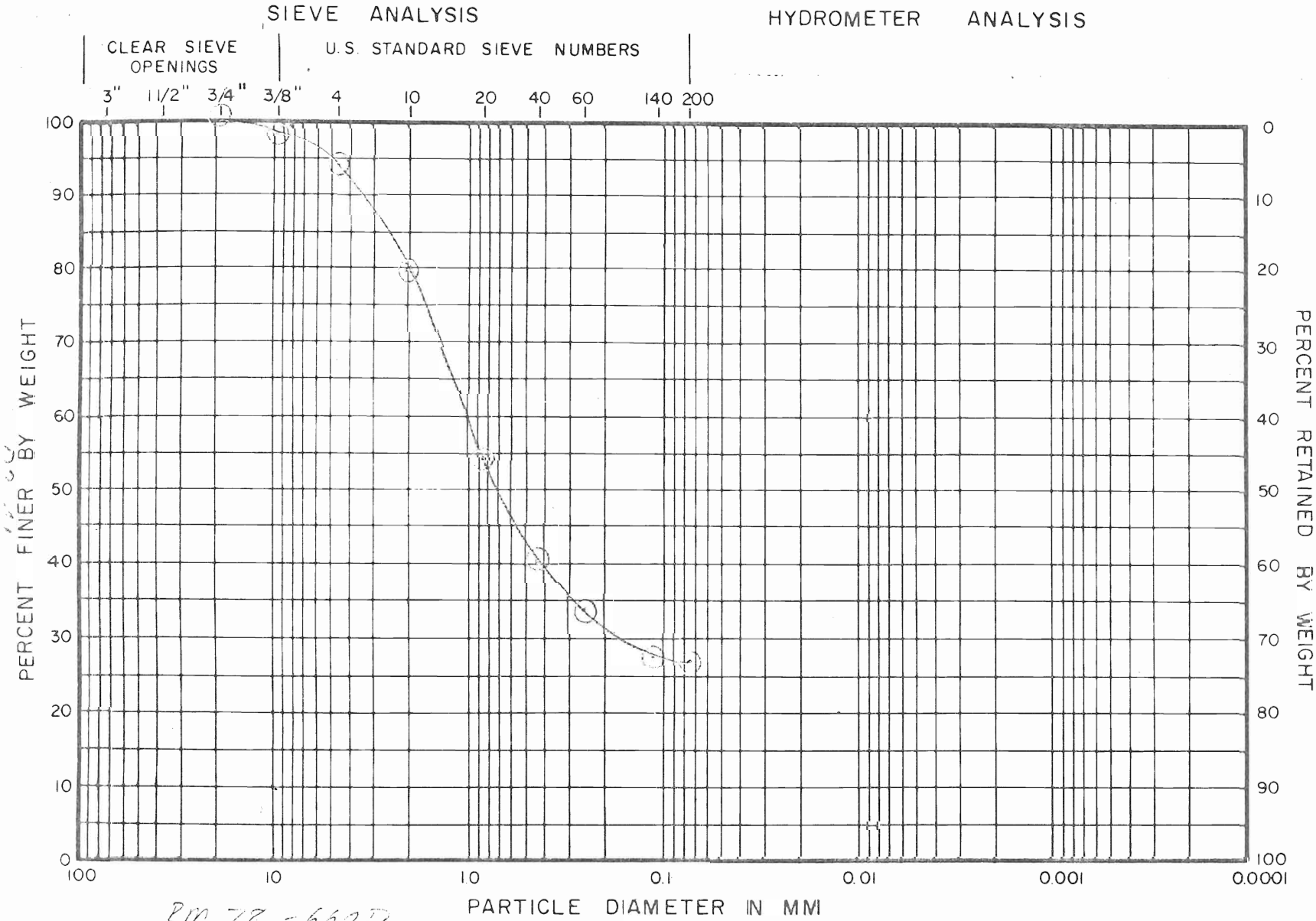
GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

PAPPLODNIA

Rin 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
Poker Jim Cr	See D-D Rod Trolley	Gravel, sandy, coarse	(GW)			



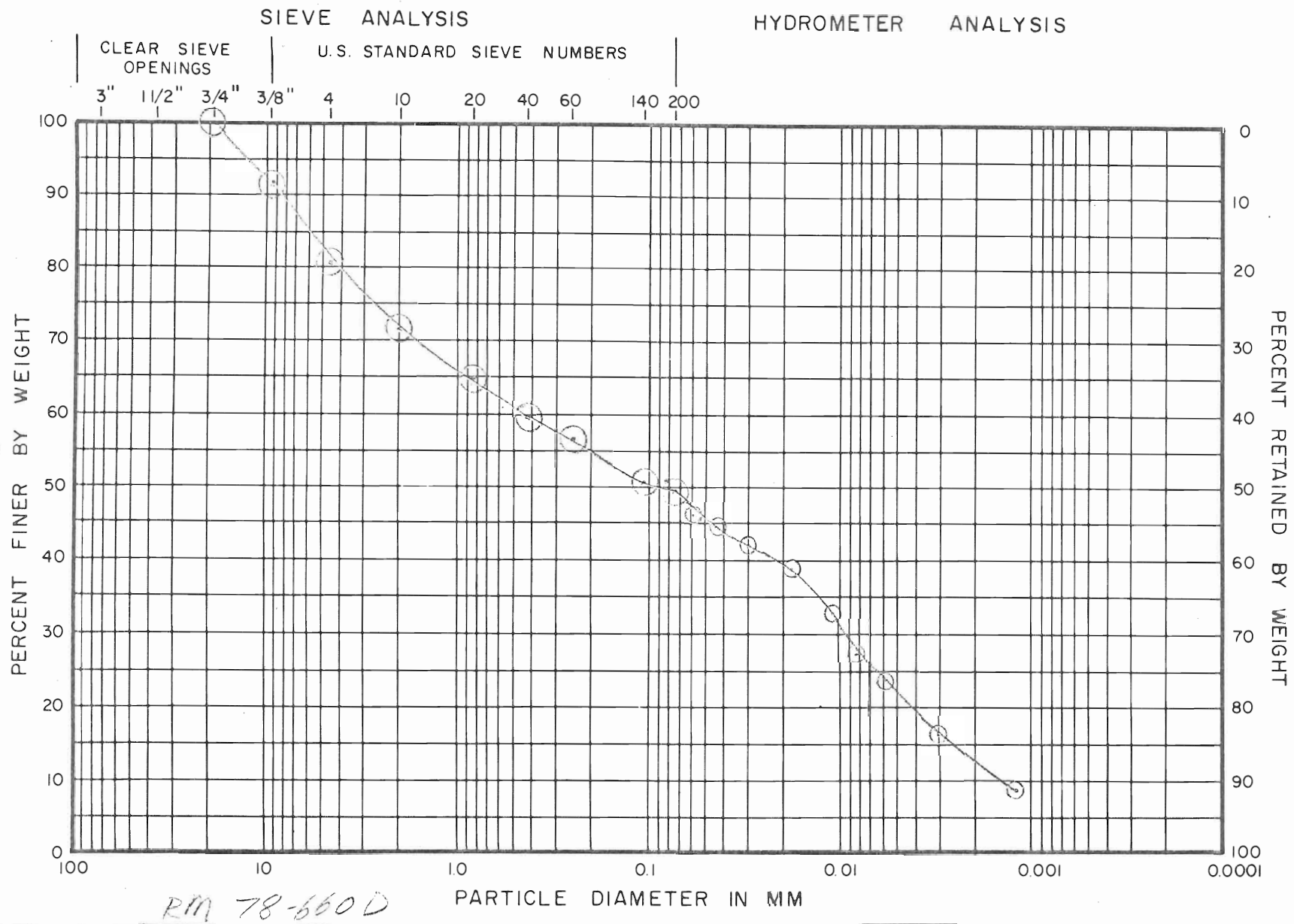
RM 78-669D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	W.C., %
	N King Cr Sta 10	Sand, coarse, od gravel, silty	SM			

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

DAMPIDONIA



RM 78-660D

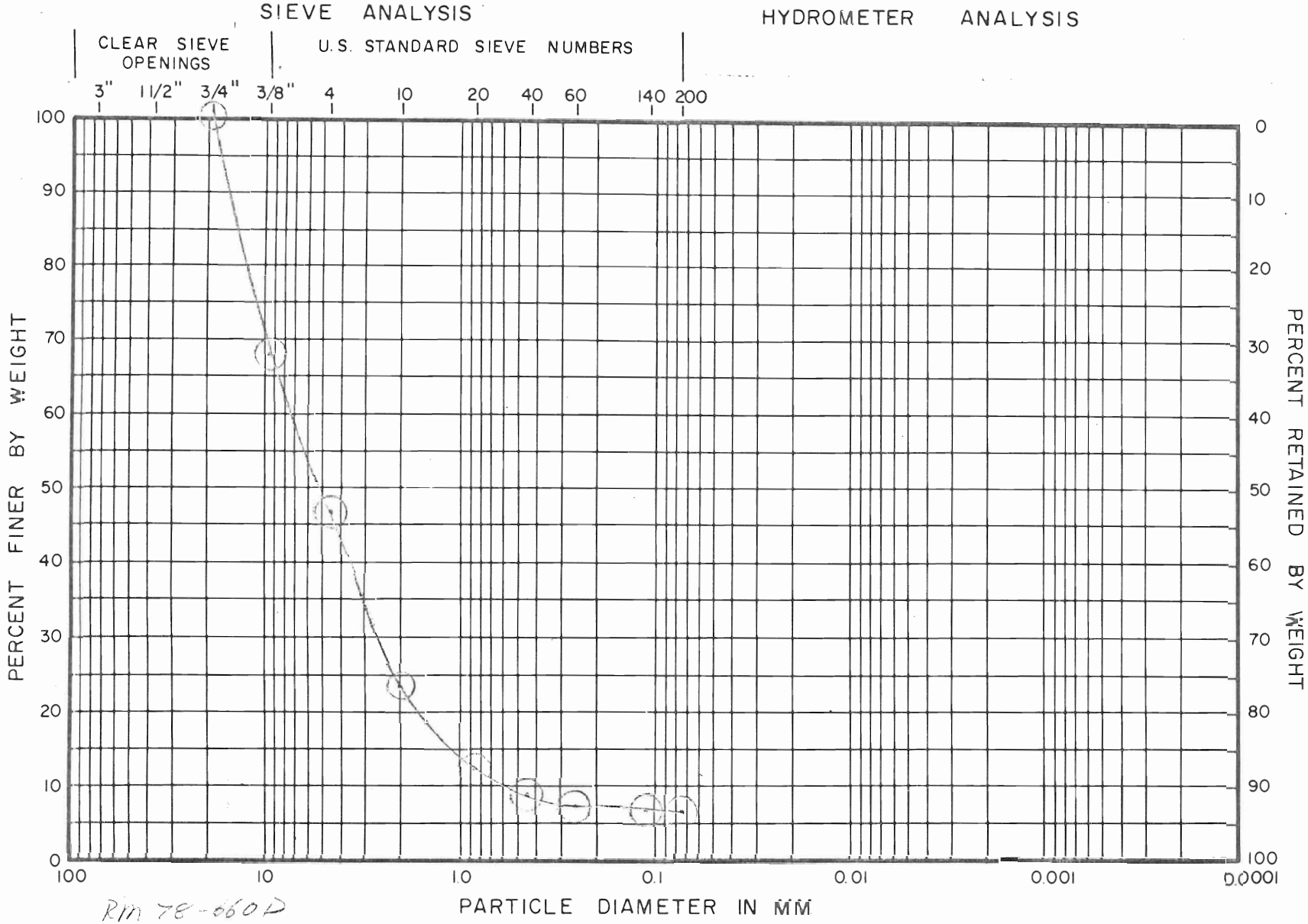
GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

DeAPROLONIA

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
	N. King Cr	Sand, gravelly, v. silty				
	Sand 0					
B-3						
Bank						

CEL
6-16-80
JS 6-24-80



GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

DAPPOLONIA

D2-02

Rm 78-060D

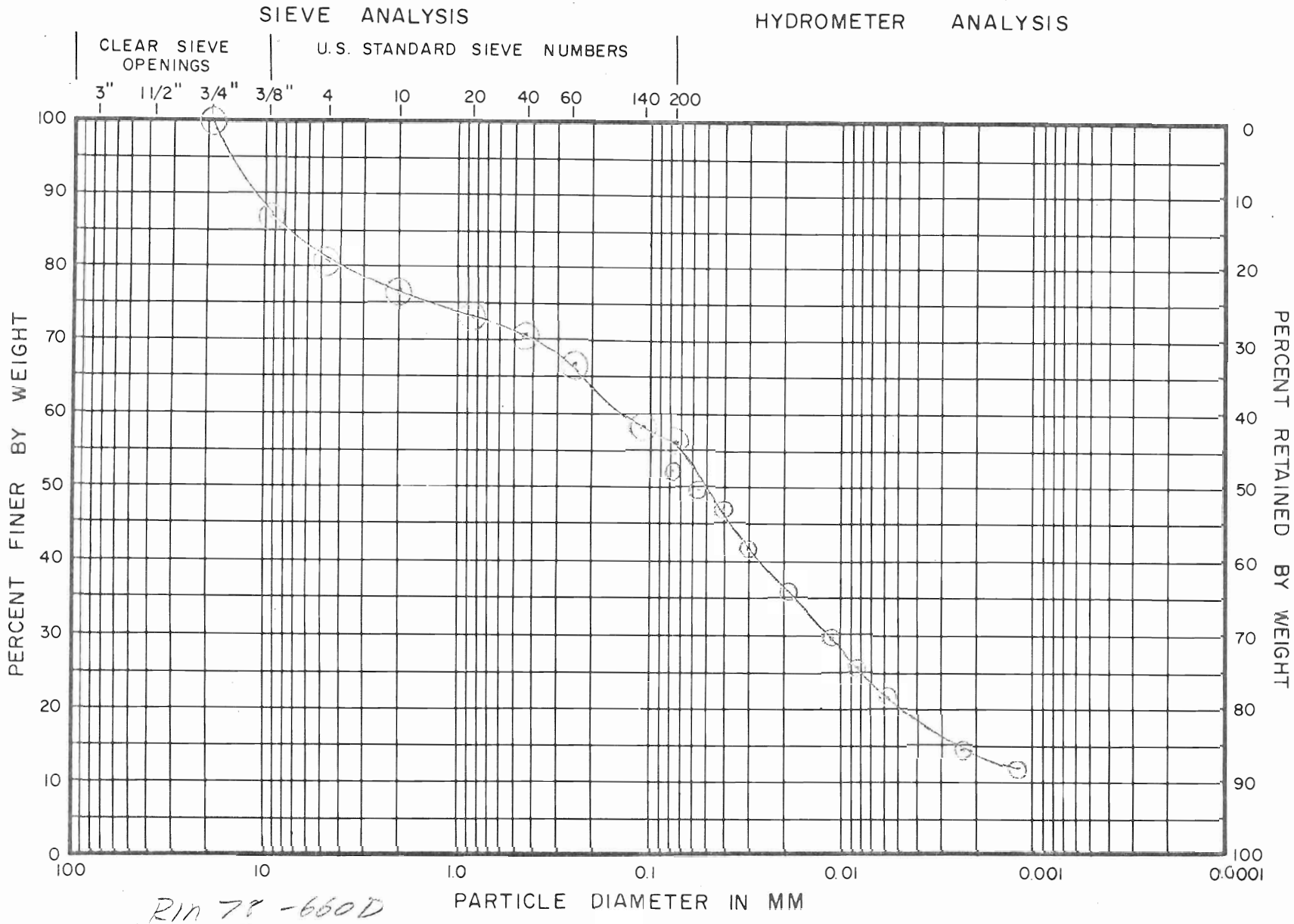
CBL
6-16-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	N. King Cr	Gravel (clinker), sandy, pl. silty	GP			
B-B'	Step D					
Bed						

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



Rin 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

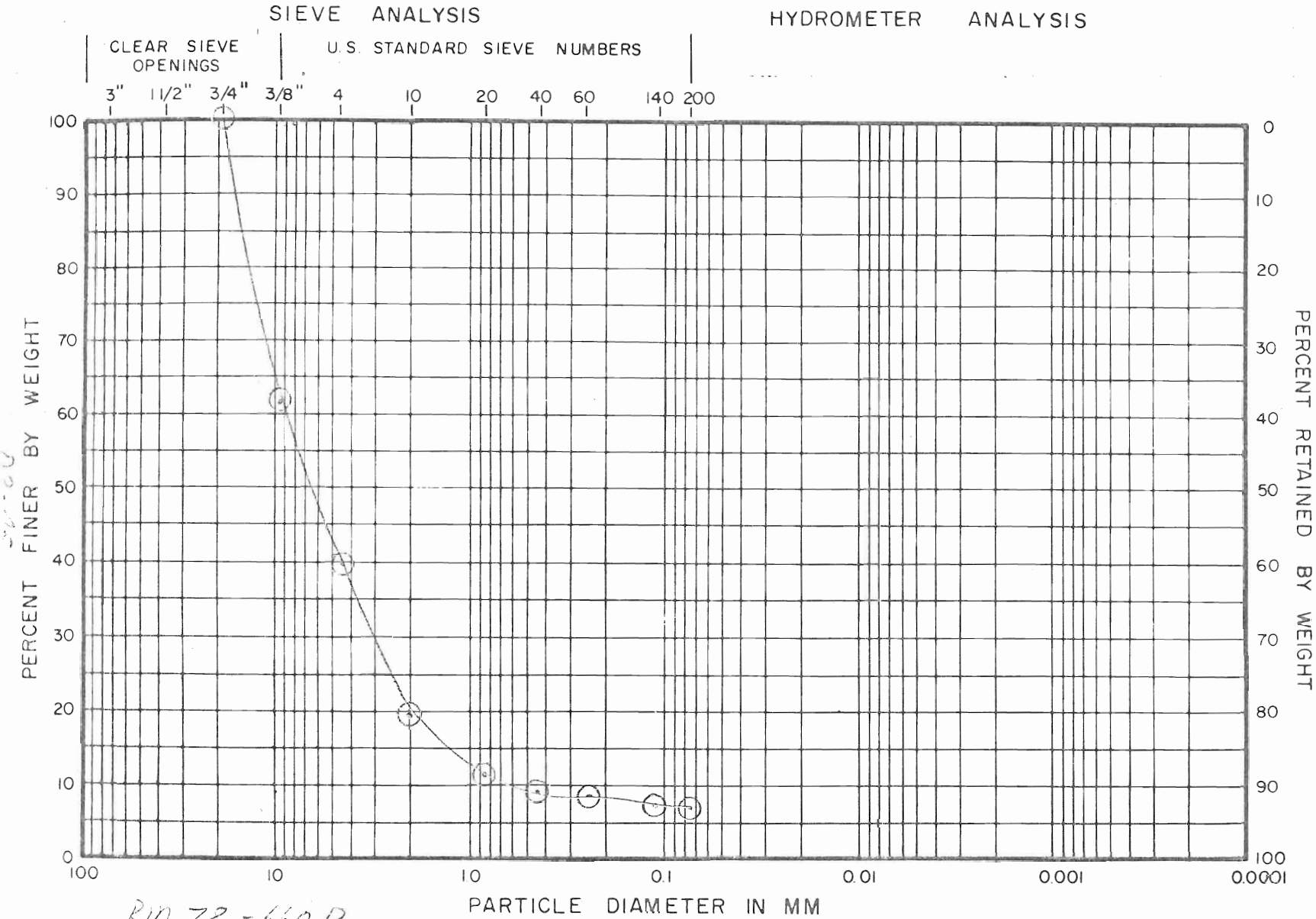
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	W.C.,%
	N. Ring Cr	Silt, sandy, occ gravel (clinker)				
A-A' Bank	Chd 1					

CBL 6-20-80

JS 6-24-80

DRAPPDIGNA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

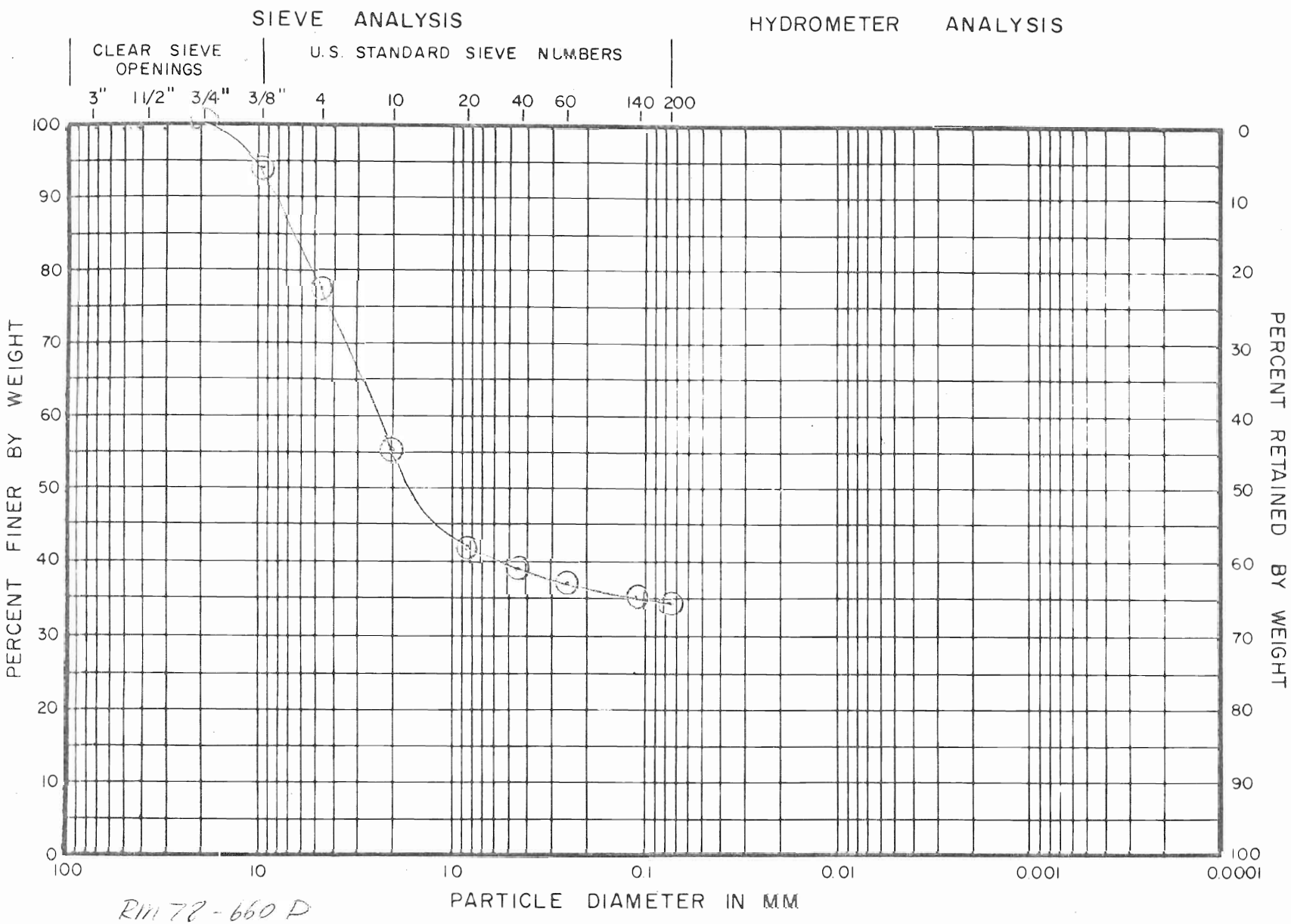


RIN 72-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
		Sand & Gravel (clinker) coarse to med,	GP			
B-A'	N. end Gr	sl. silty				
Fed	Shed 1					

CBL
6-11-80
JS 6-11-80



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

DRAPIDONIA

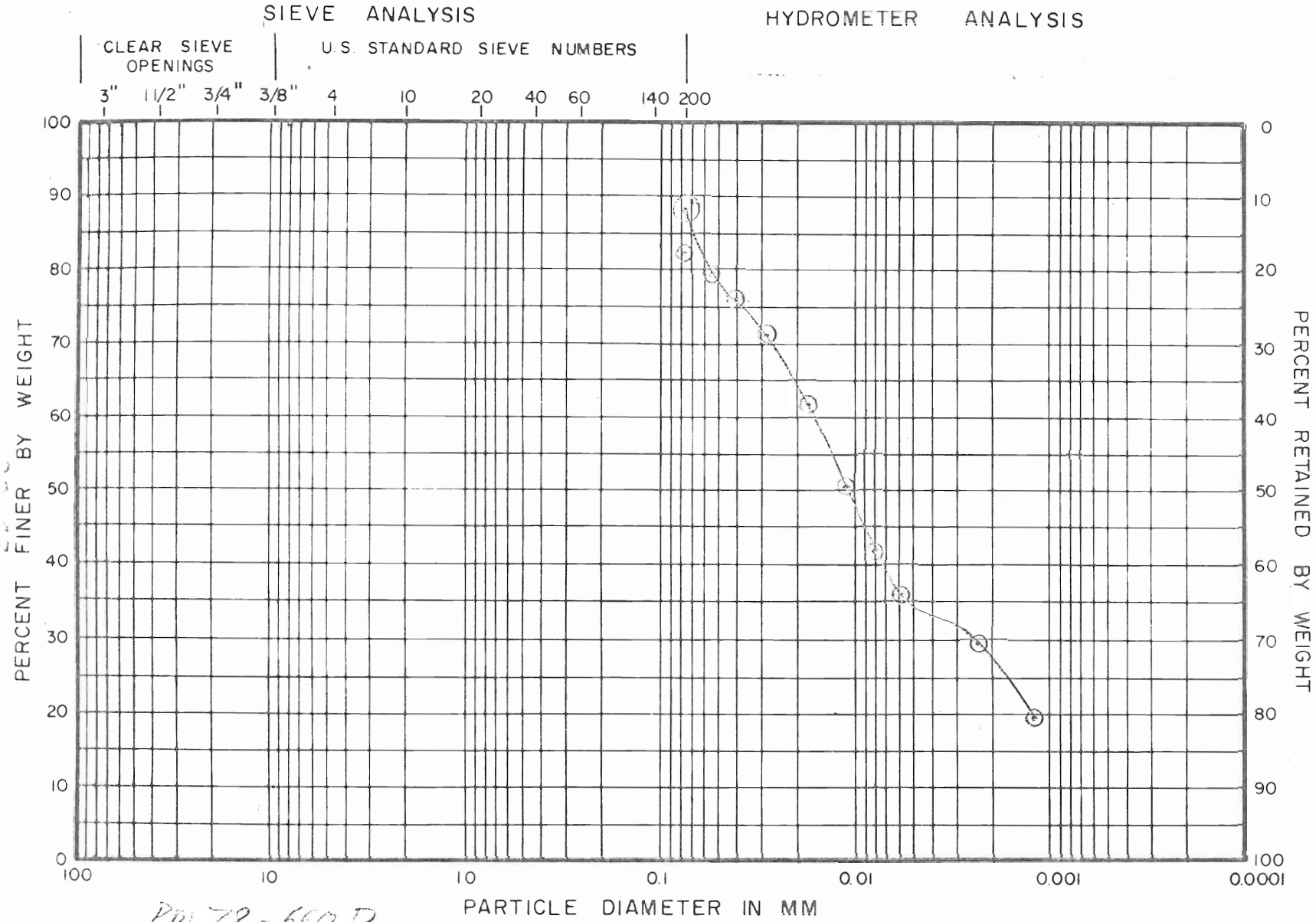
RM 78-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
B-B'	W. King Cr	Sand, fine to coarse, v. silty, occ gravel	SM			
B-11	Shed 1					
Concrete						

CBL
7-2-80

P
7-2-80



RM 78-660 D

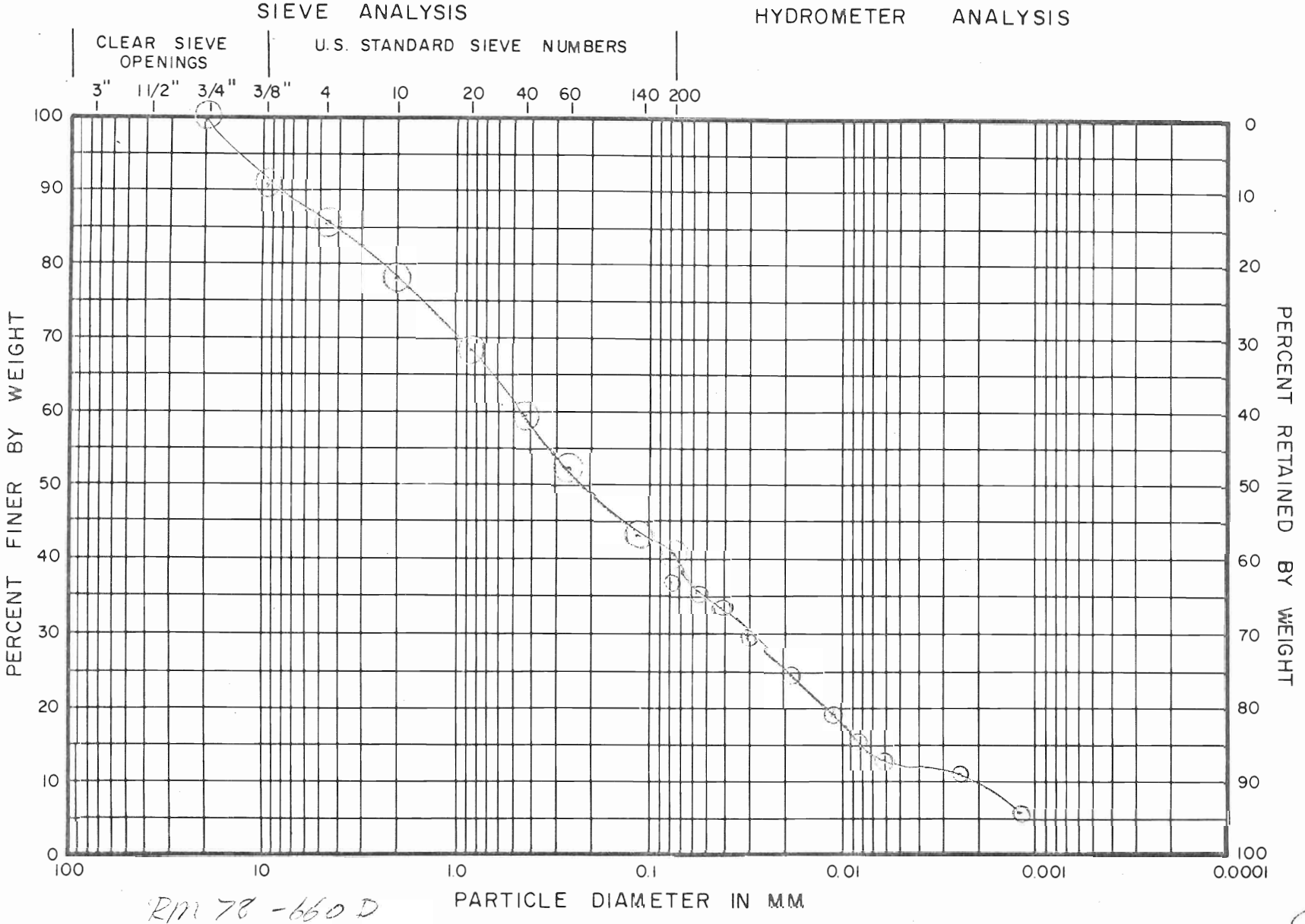
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
H-A Bank	N. King Cr Shb'd 2	Silt, clayey, sl. sandy	ML			

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

DRAFT

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



RM 78-660 D

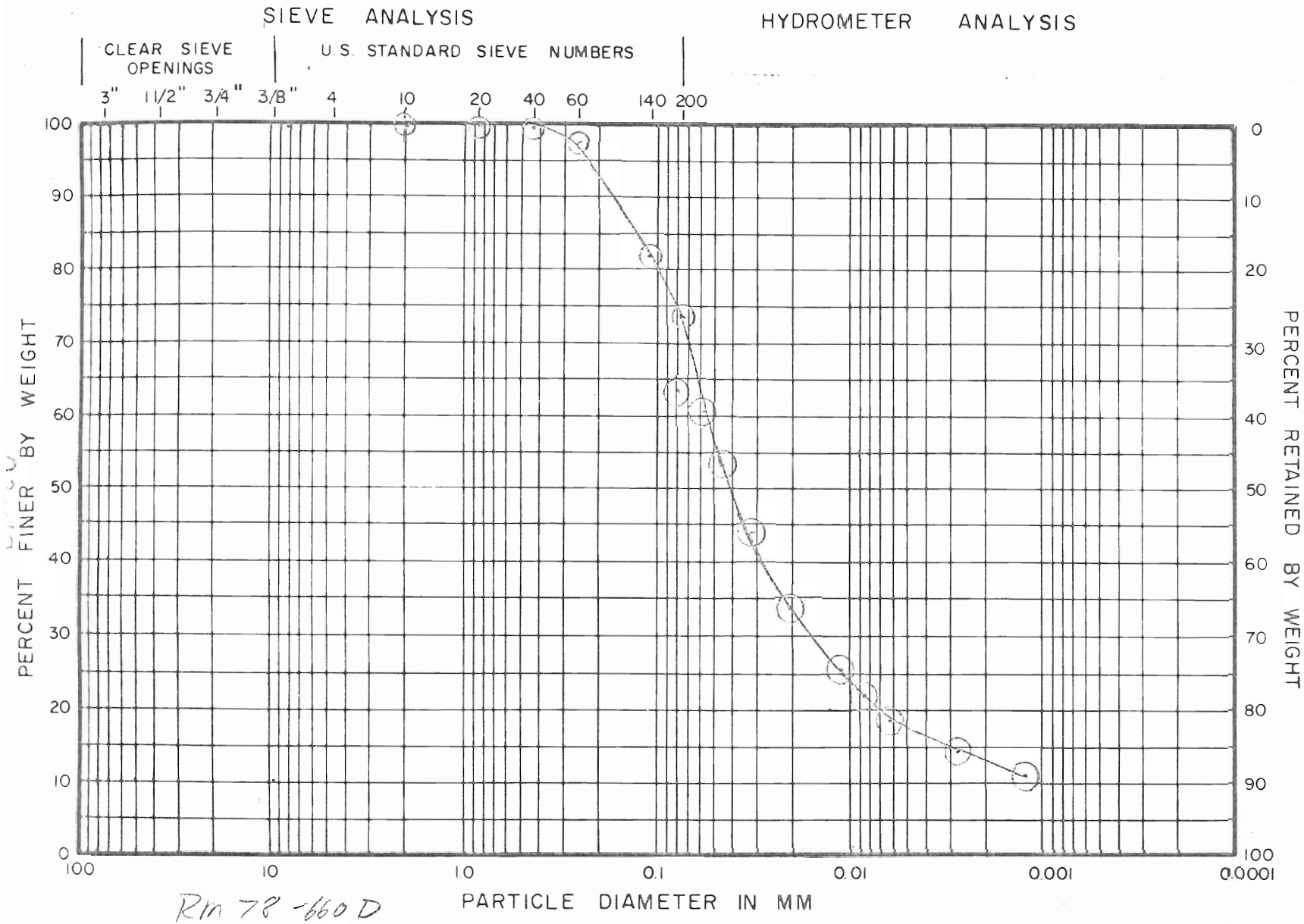
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	N. King Cr.	Sand, gravelly (cinders) v. silty				
A-A'	Shed 2					
S-28						

CBL 6-16-80

JS 6-24-80

DAPPOLONIA



Rm 78-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	N. King Cr					
B-B	Shell 2					
Ranch						

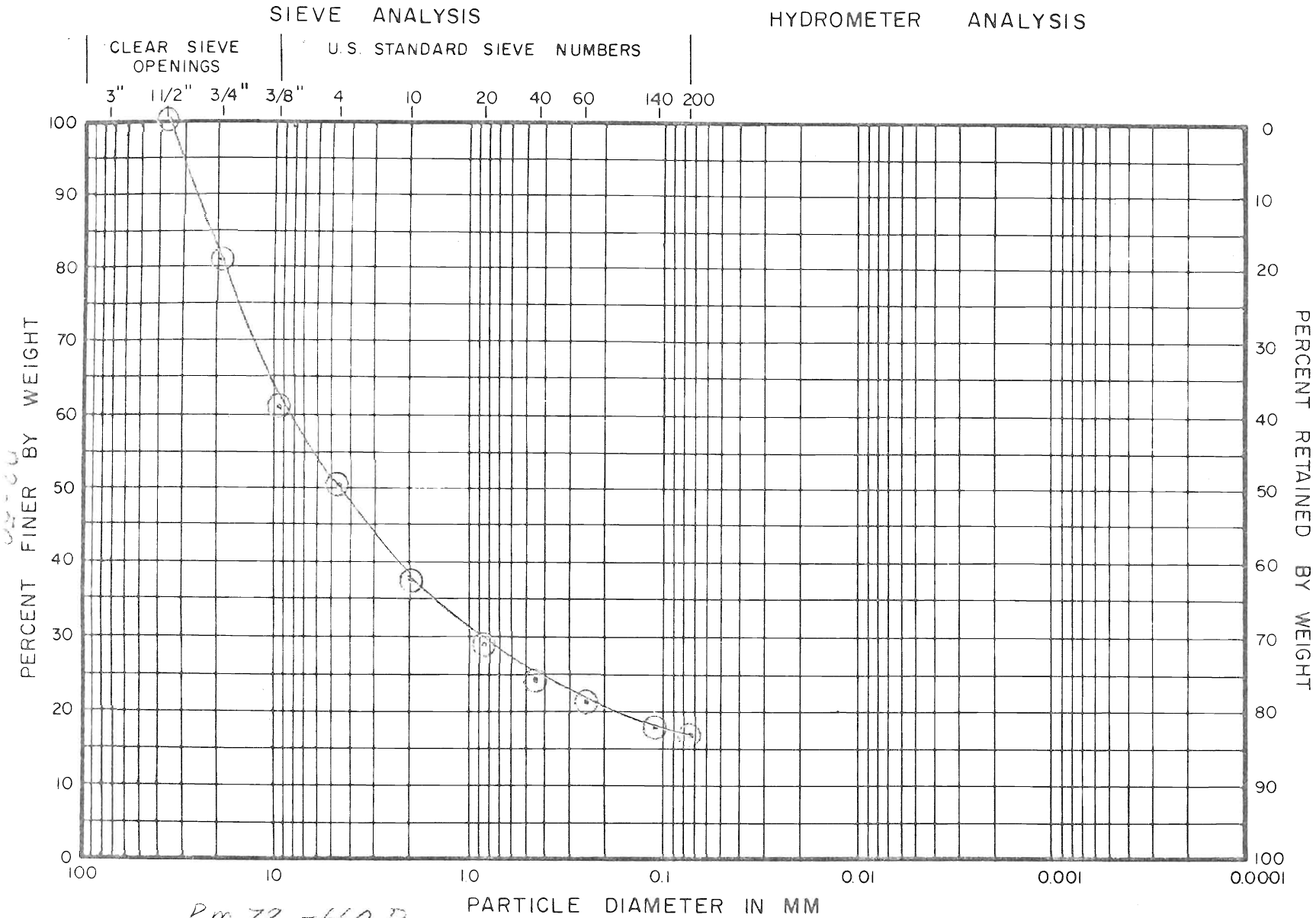
CBL
6-22-80

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

IMPPOLONYA

DRAPER DOLONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



Rm 72 -660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

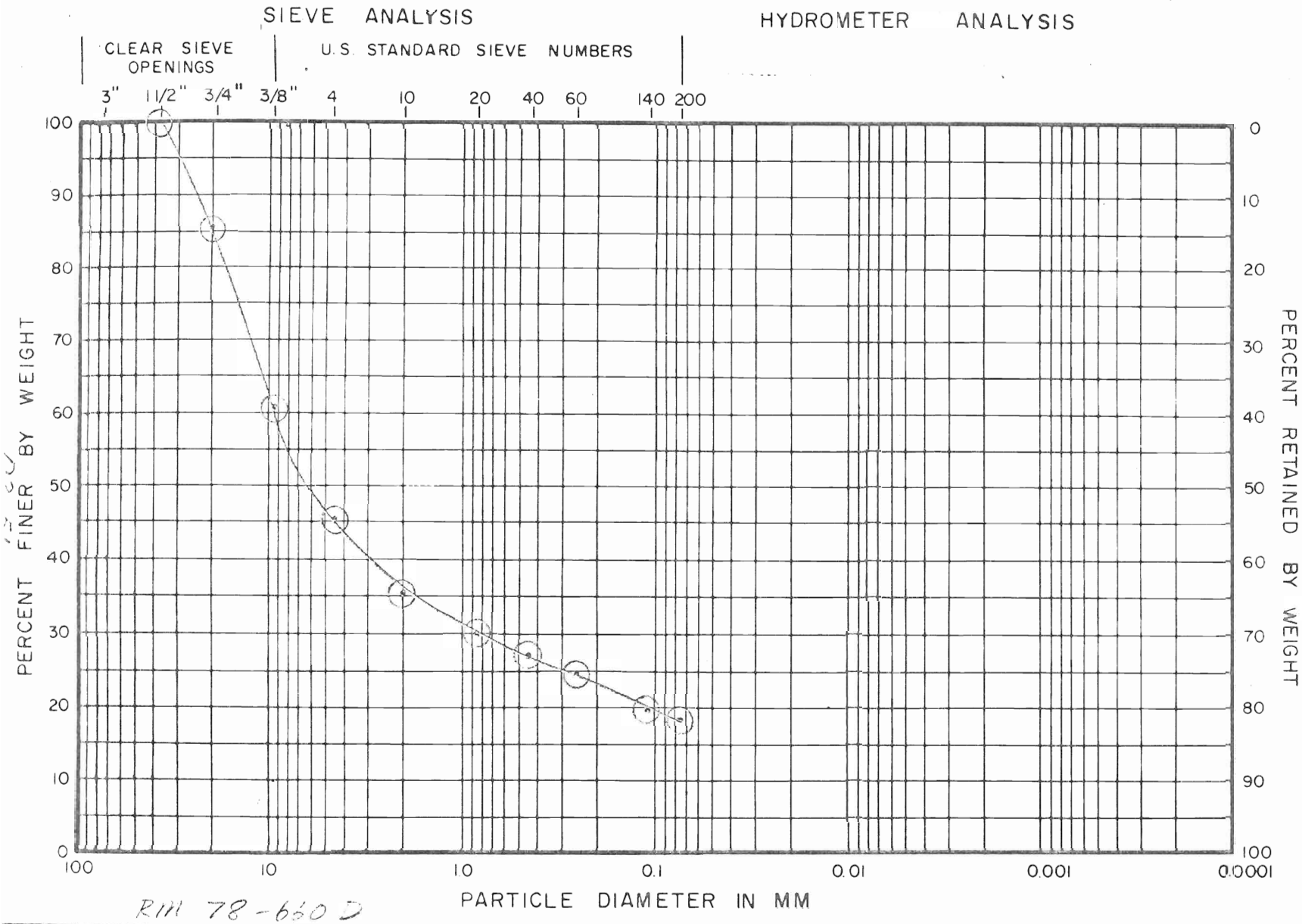
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
		Sand & gravel (cinders) coarse to med	GM-SM			
B-B	N. Ring Cr	sl. silty				
Sed	Shed 2					

CSL
6-11-80

JS 6-24-80

DRAPER ONTA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

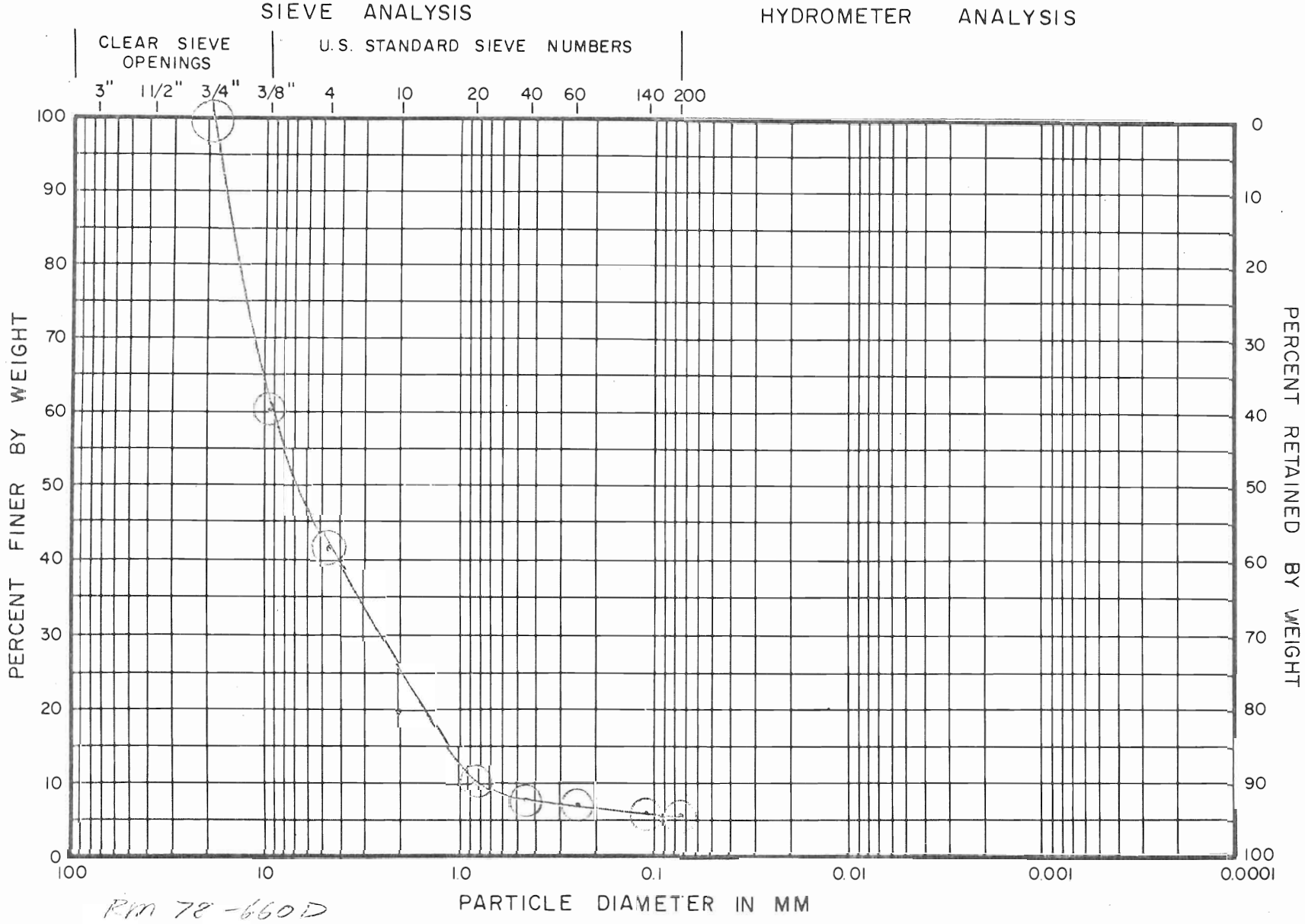


RM 78-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
		Gravel sand (clinkers) coarse to med.	GM-SM			
B-8'	N. King Cr	sl. silty				
Bank	Shed 3					

CBL
6-11-80



RM 78-660D

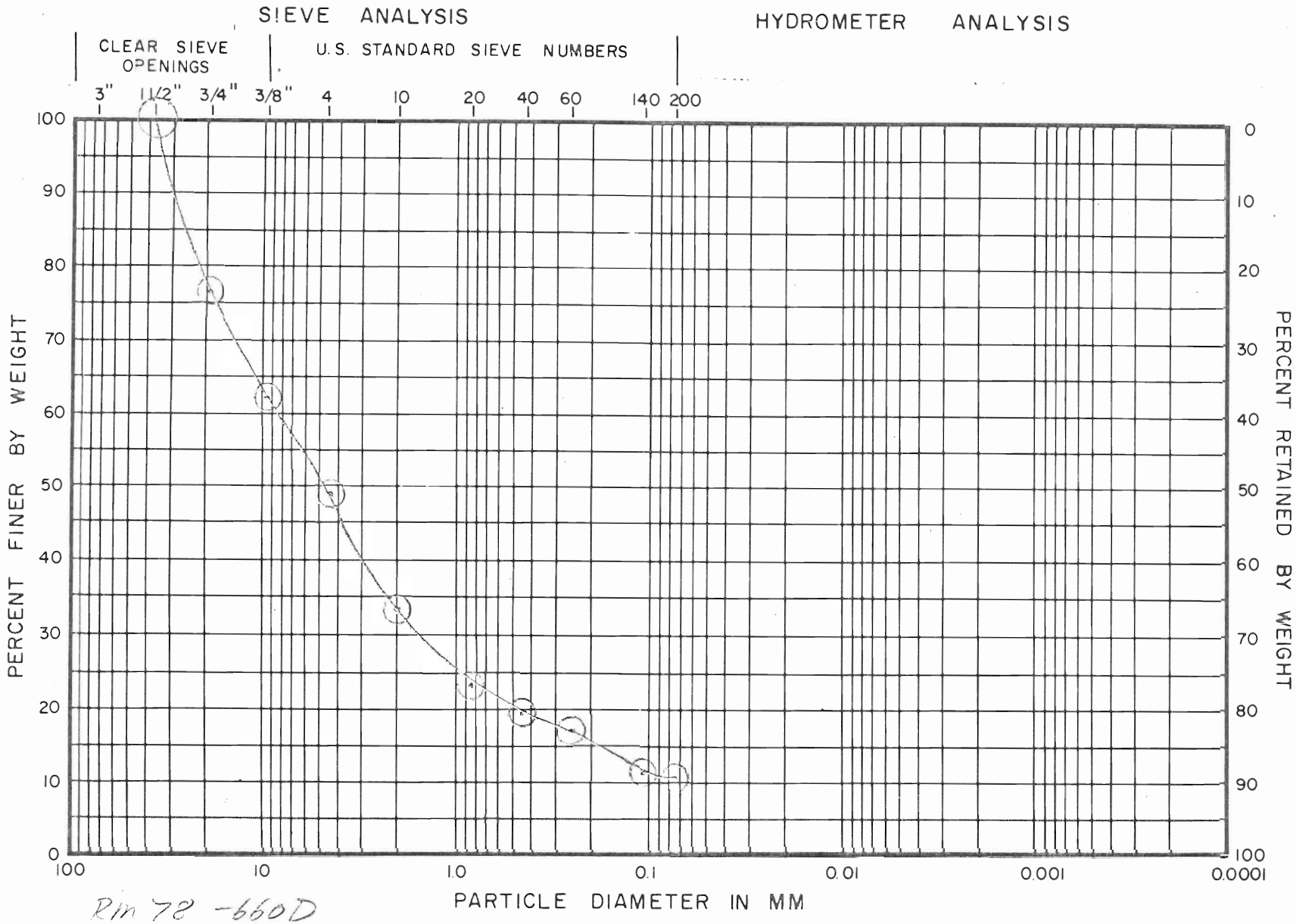
GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

D'APPOLONIA

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	N. King Cr.	Gravel (chinkers), sandy, sl. silty	GP (SM)			
B-E						
Bed	Shed 3					

CBL
6-12-80
JS 6-24-80



GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

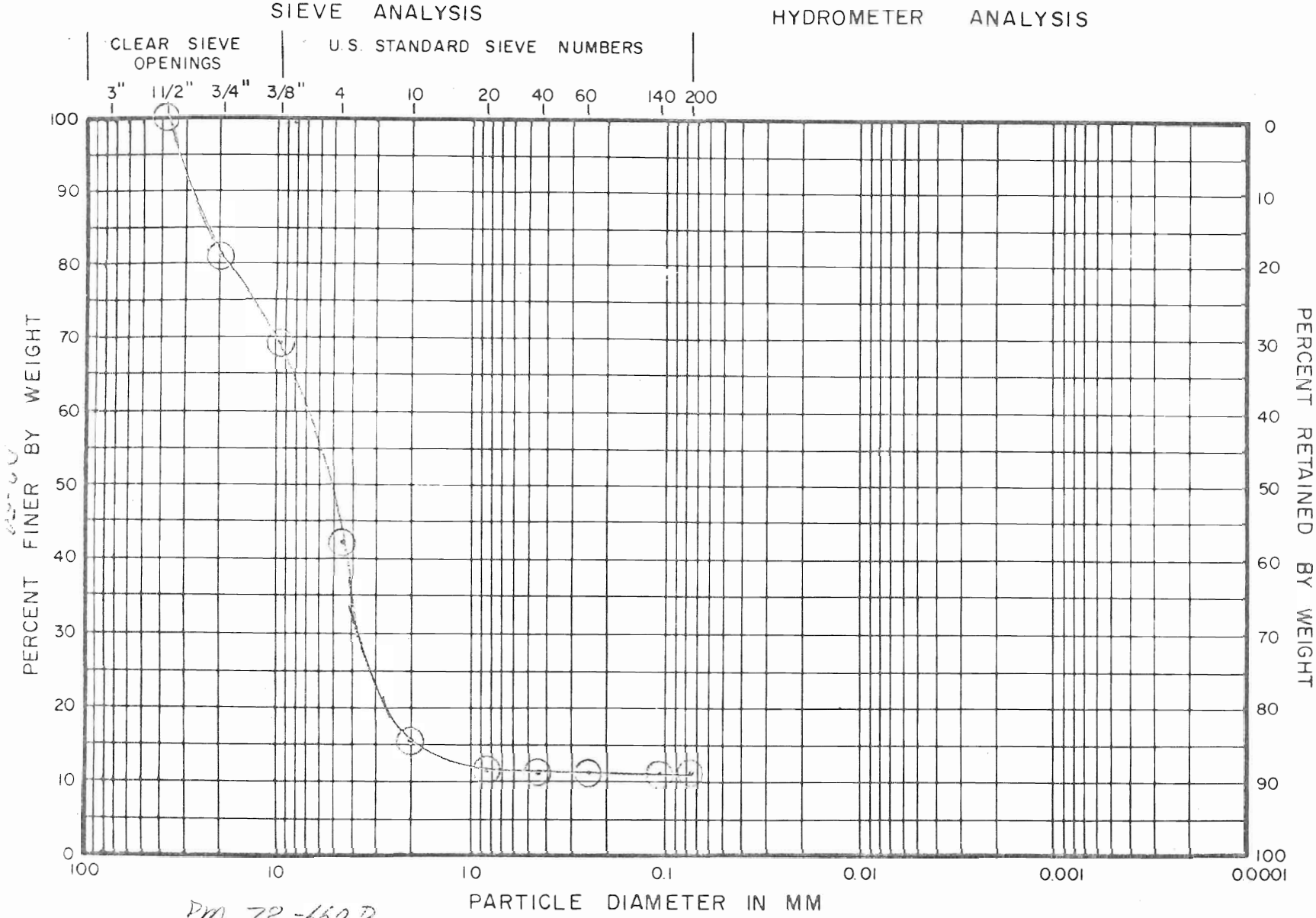
DRAPOLONIA

Rin 78 -660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	N. King Cr	Gravel (clinker), sandy, sl. silty	GM-SM			
C-C						
Bank	Shovel					

CBL
6-17-80
JS 6-21-80



RM 72-660D

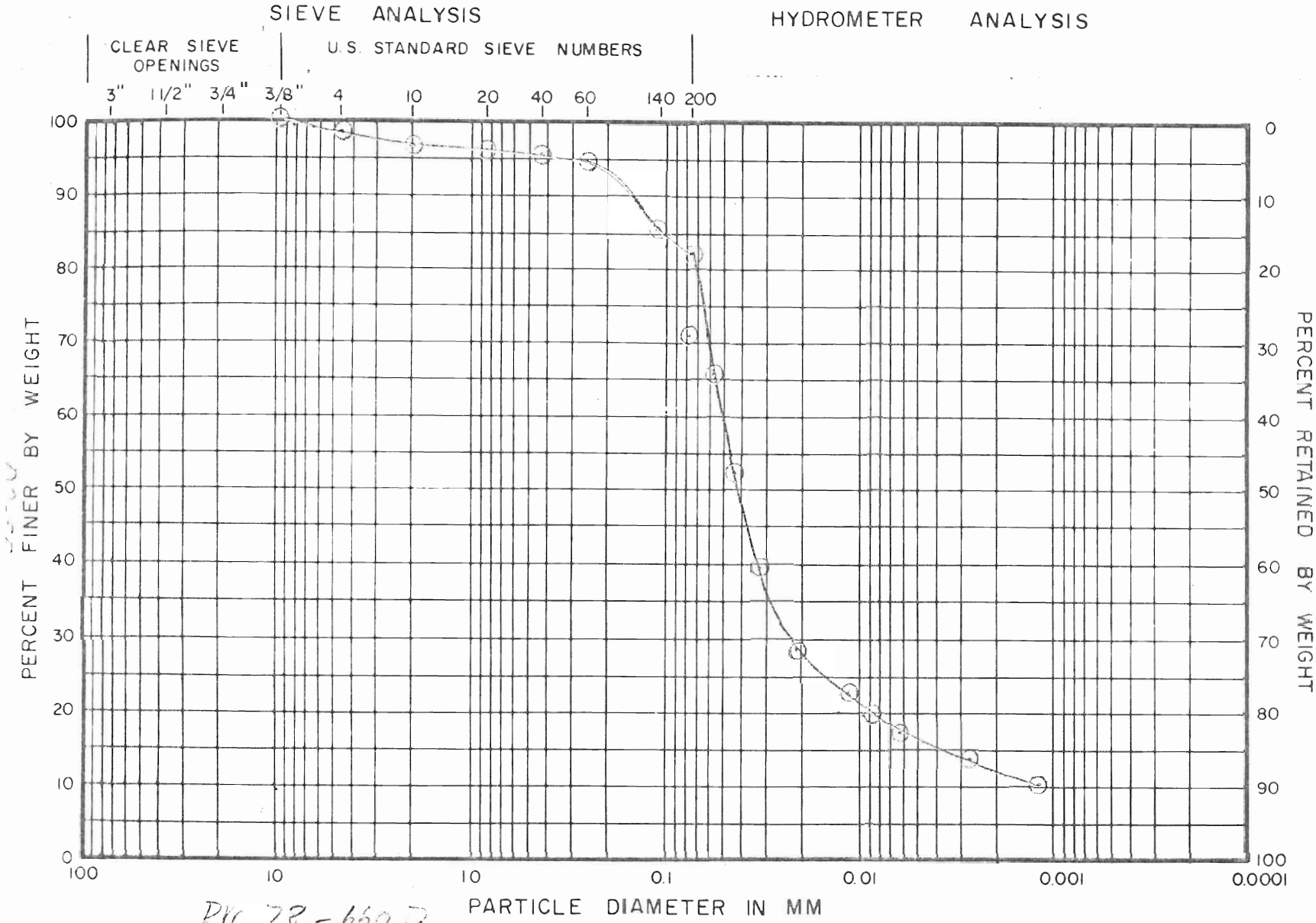
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
		Gravel & sand (clinkers) sl. silty	GP-SP			
C-C Bed	N. Kiln Cr Sied 3					

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

CBL
6-11-80
JS 6-24-80

DRAFT



RW 78-660 D

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

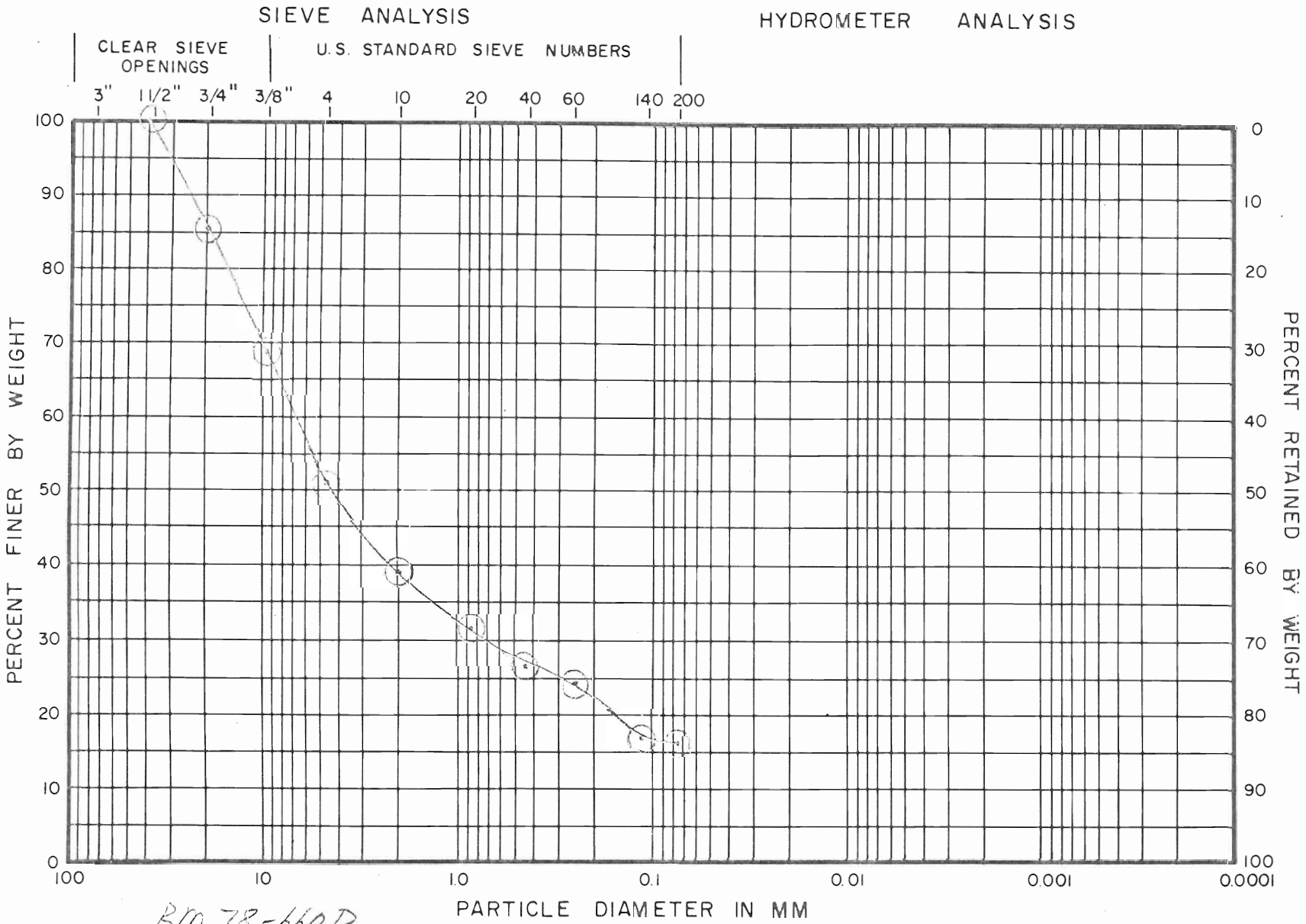
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	H. Ring Cr.					
H-H						
Rock	Sil 4					

CBL
6-22-80
JS 6-24-80

DRAPER/ONYX

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

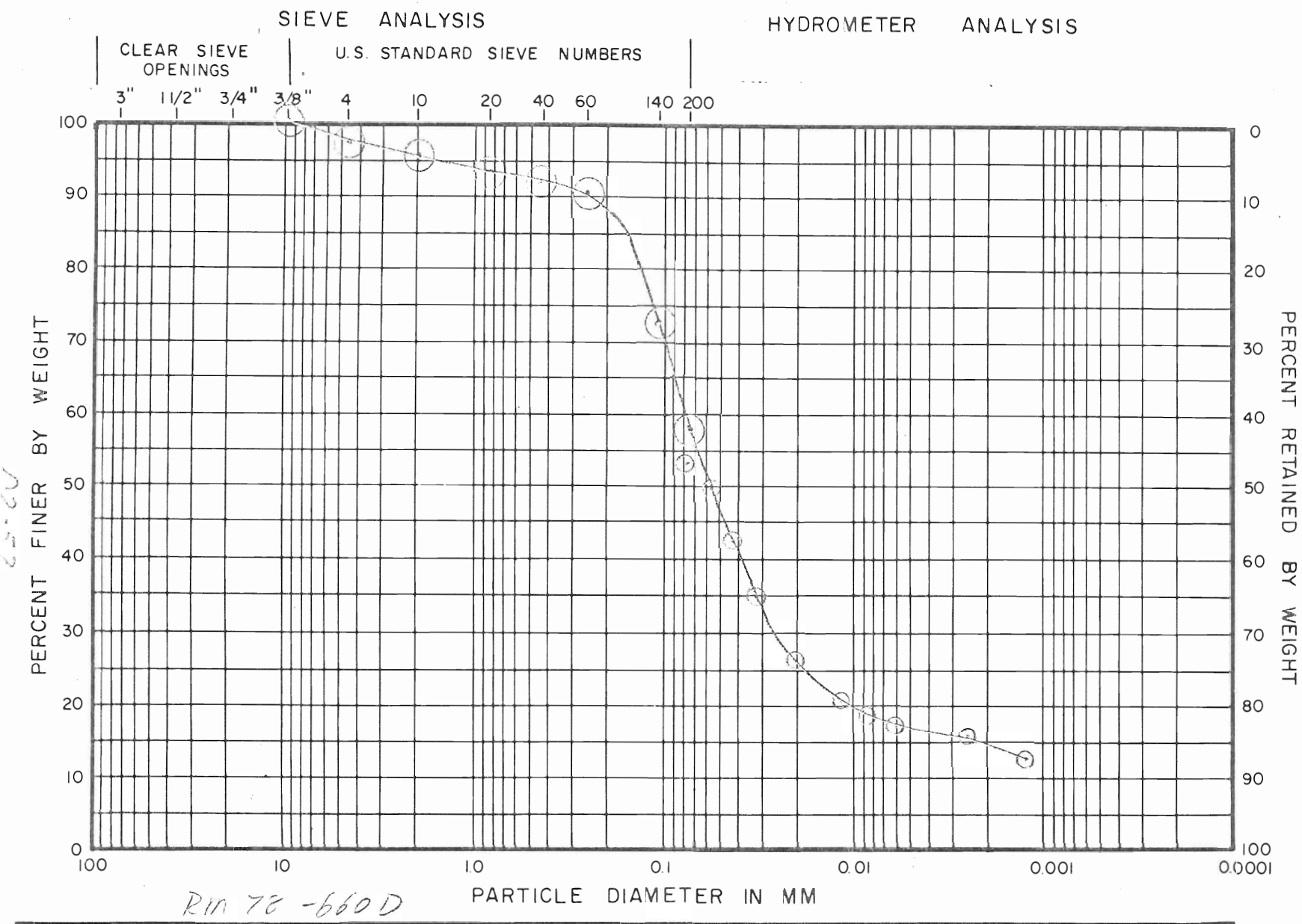


RM 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	N. King Co	Gravel, sandy, silty	GM-SM			
A-A'	Seal 4					
Bal						

CB
6-10-80
JS 6-24-9



GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

PANDIDONIA

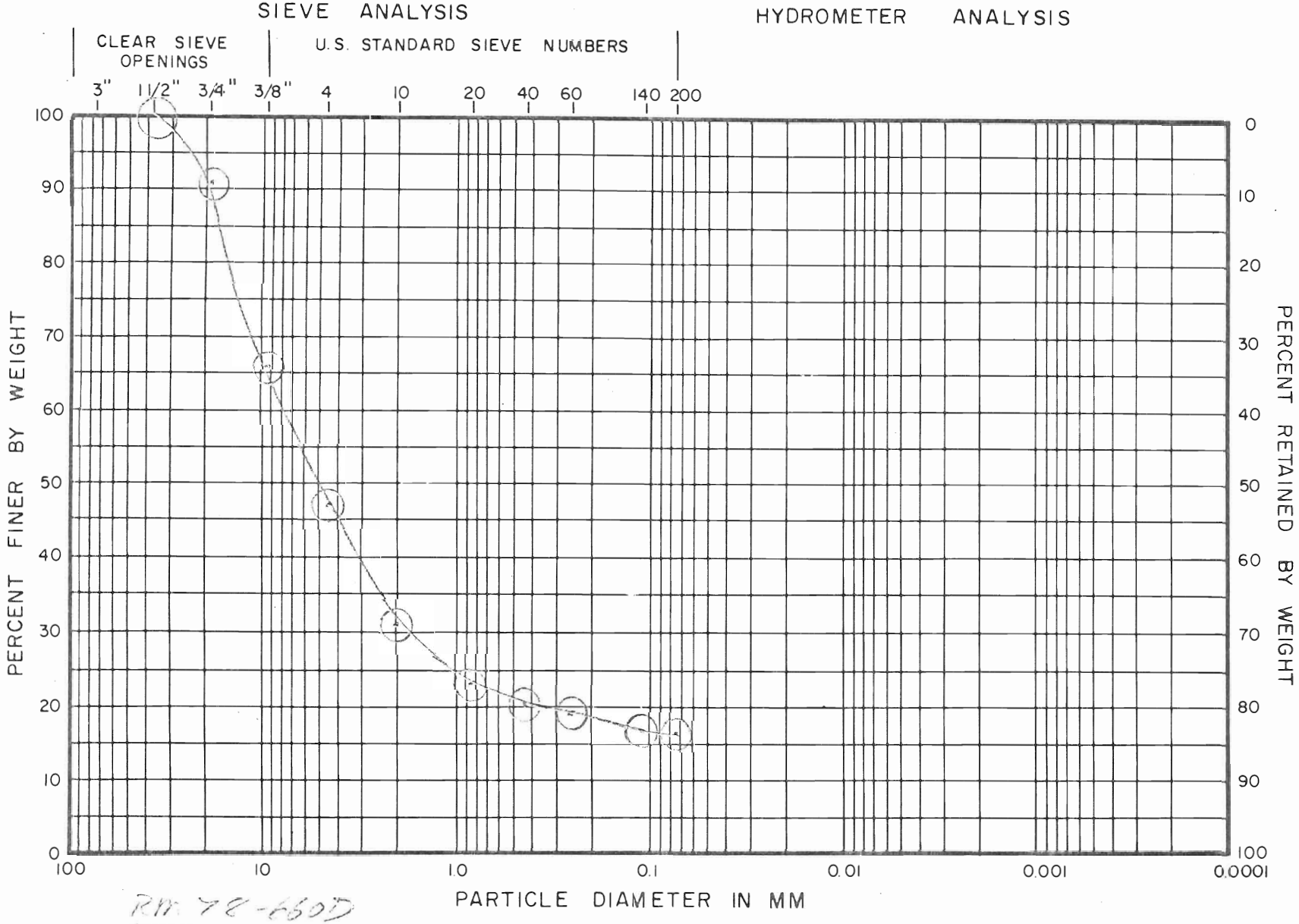
Rin 78-660D

CBL
6-16-80

JS 6-24-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	N King Cr	Silt, sandy, ore gravel (clinker)				
E-B						
Trench	Shed 4					



D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

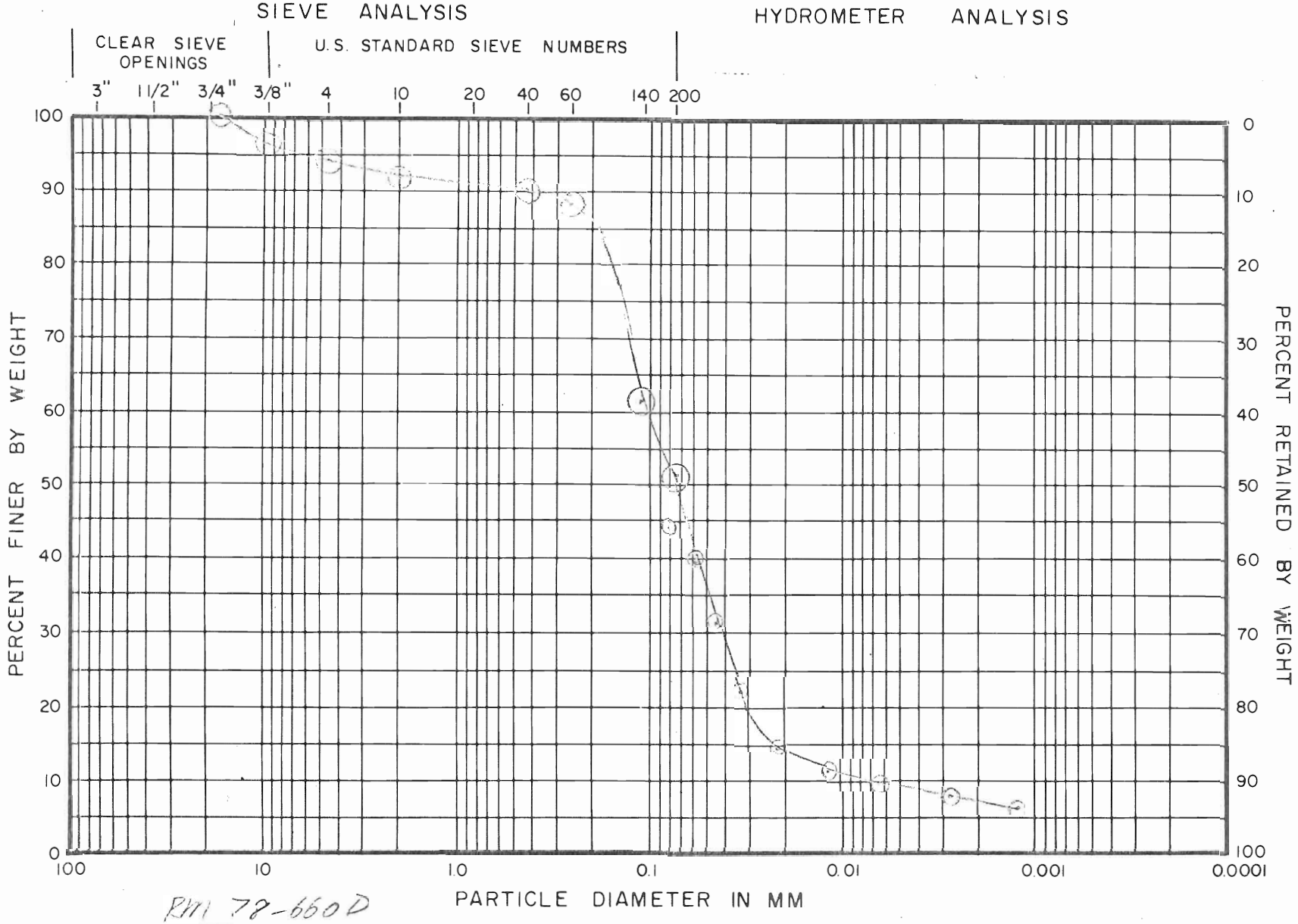
RM 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	N. King St	Gravel (clinker) sandy, sh silty	GM-SM			
B-B'						
Bed	Shed 4					

CBL
6-17-80
JS 6-24-80

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



RM 78-660D

CBL 6-16-80

JS 6-24-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

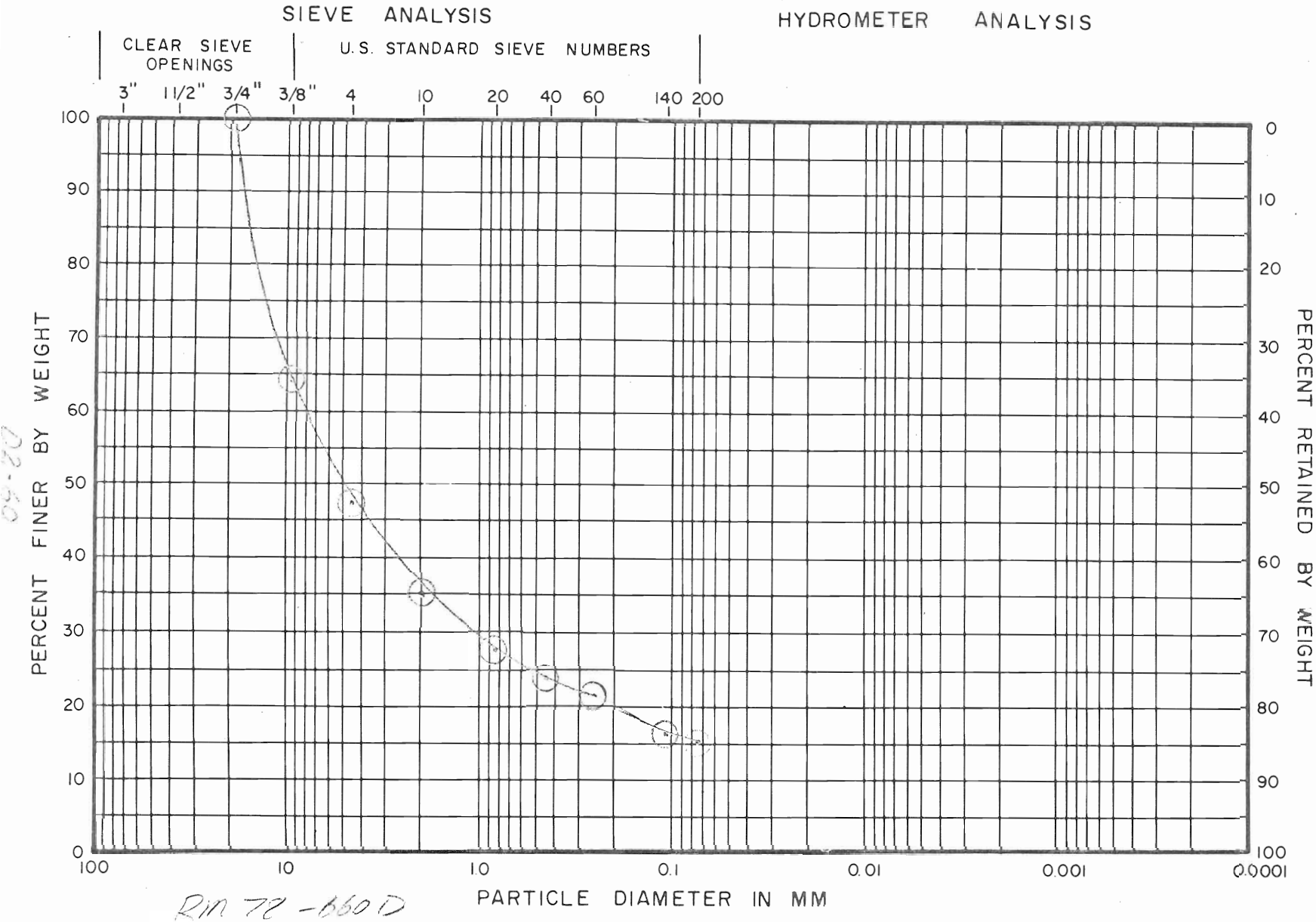
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	N. King Cr.	Sand, occ gravel (clinker) v. silty				
C-C	Std 4'					
Bank						

D2-50

DAPPOLONIA

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



RM 72-660 D

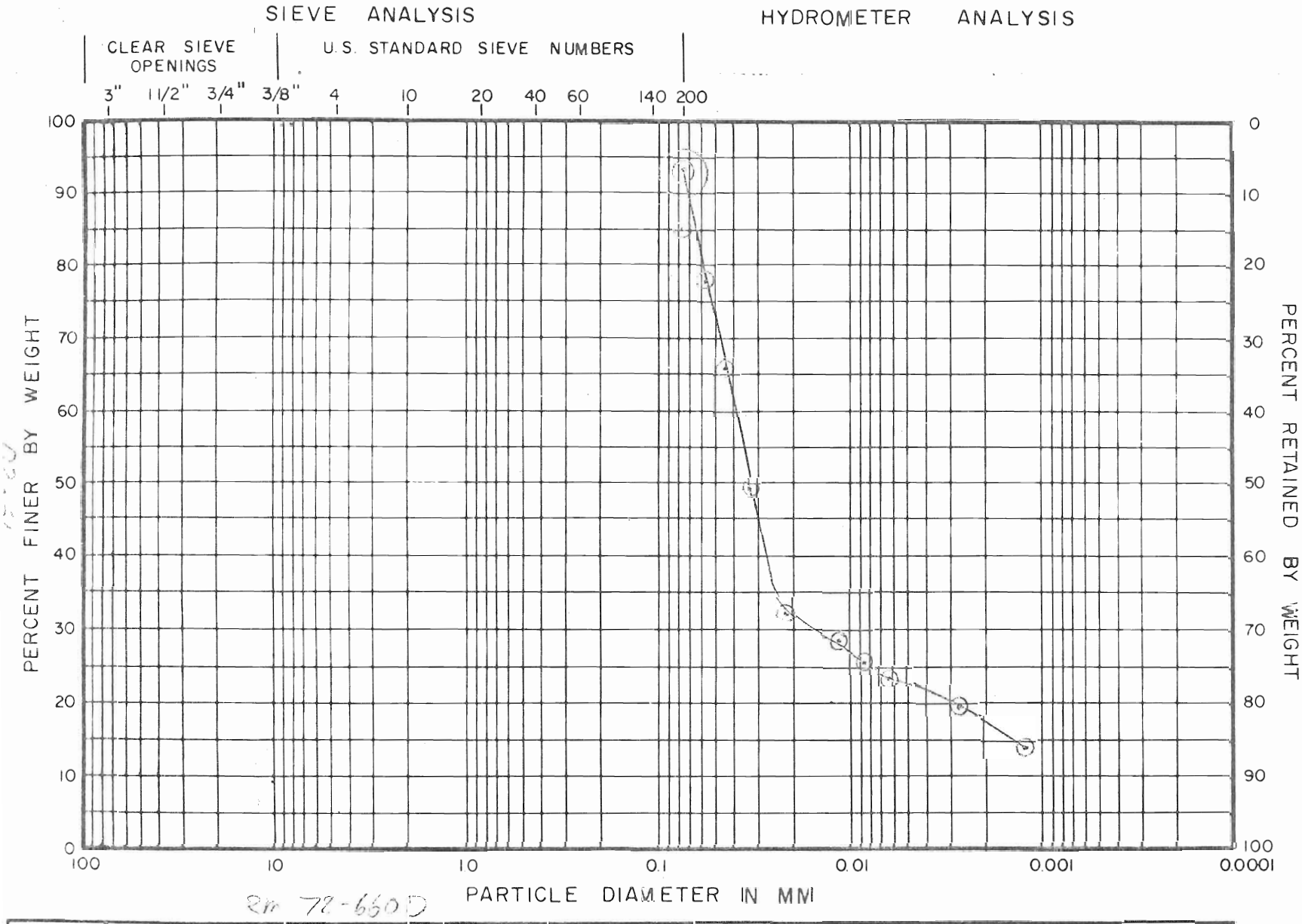
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
	N. King Cr.	Gravel, sand, silty	GM-SM			
C-C						
B-d	Shed 4					

02-70

CEL 6-70-80

JC 5-24-8



Rm 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

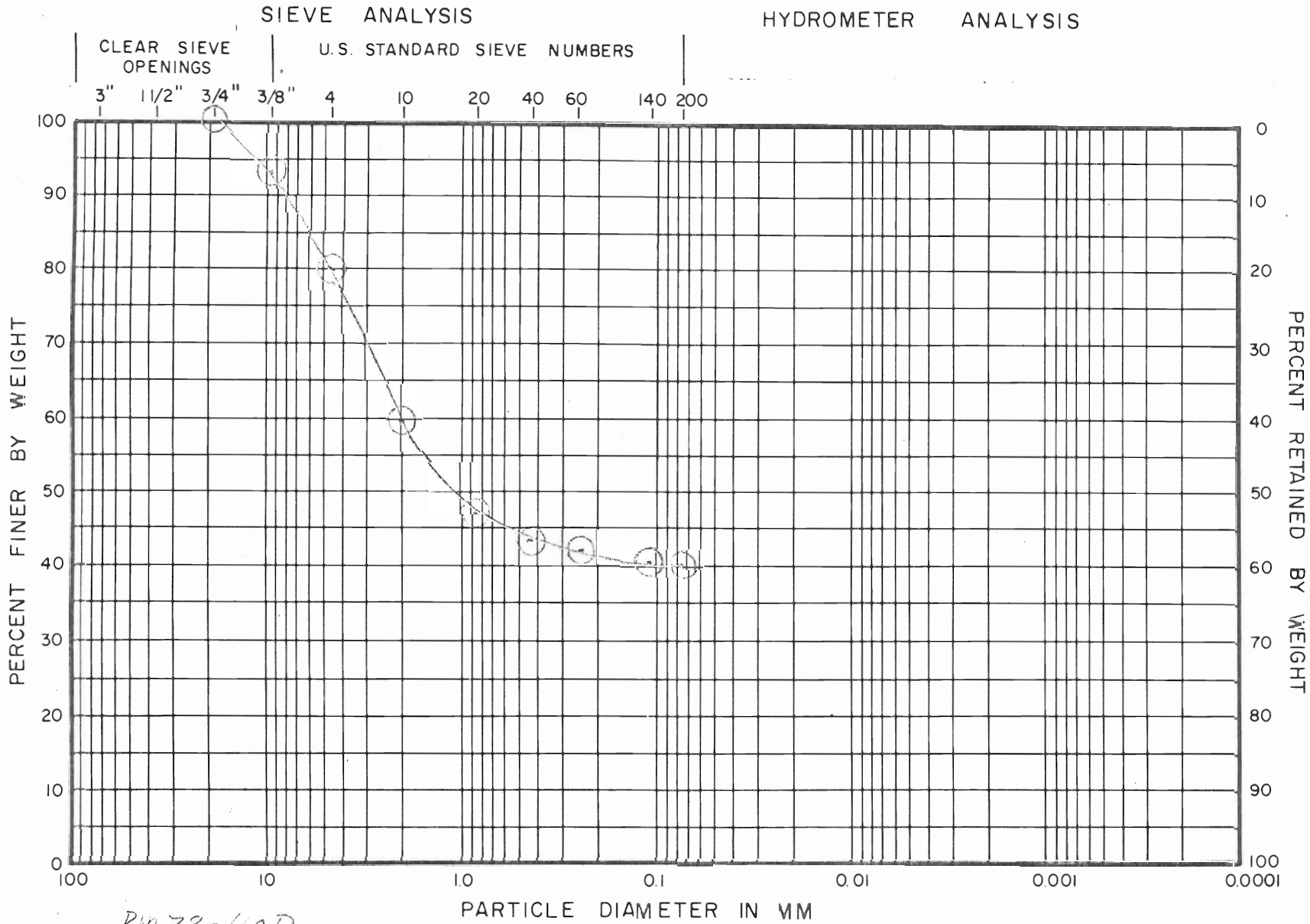
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	W.C. %
D-D Bank	Al. Kiny Cr Shed 4	Silt, sl. clayey	ML			

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

CBL
6-22-80

IDEALIFORNIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



Rim 78-650D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
		Sand, Gravel (clinker) clayey-silty				
Shaft 4	N. Kings Cr					
	D'-D Bed					

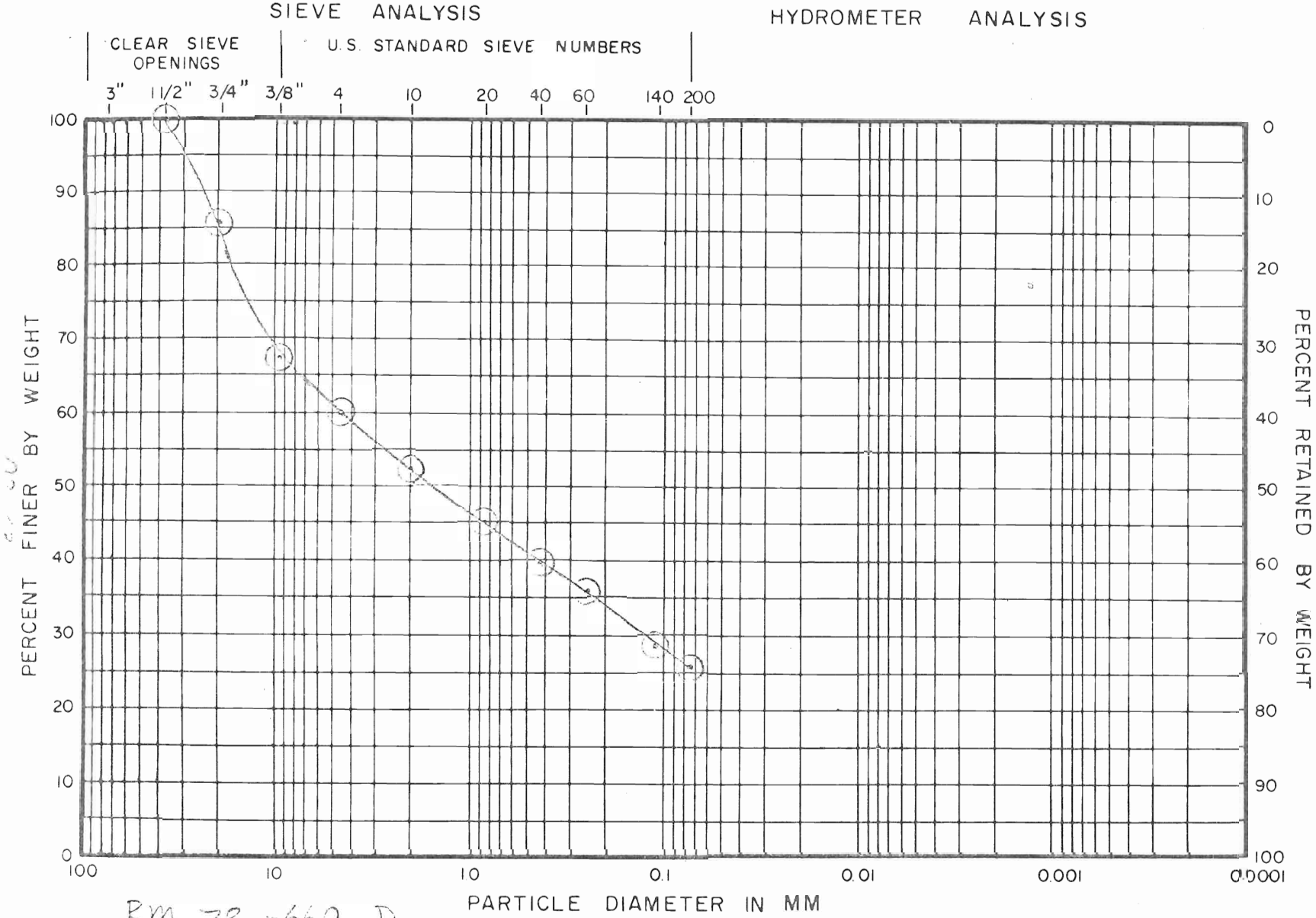
CBL
6-16-80
JJ 6-24-80

02-20

IDEALIDOLONIA

DEMPOLONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



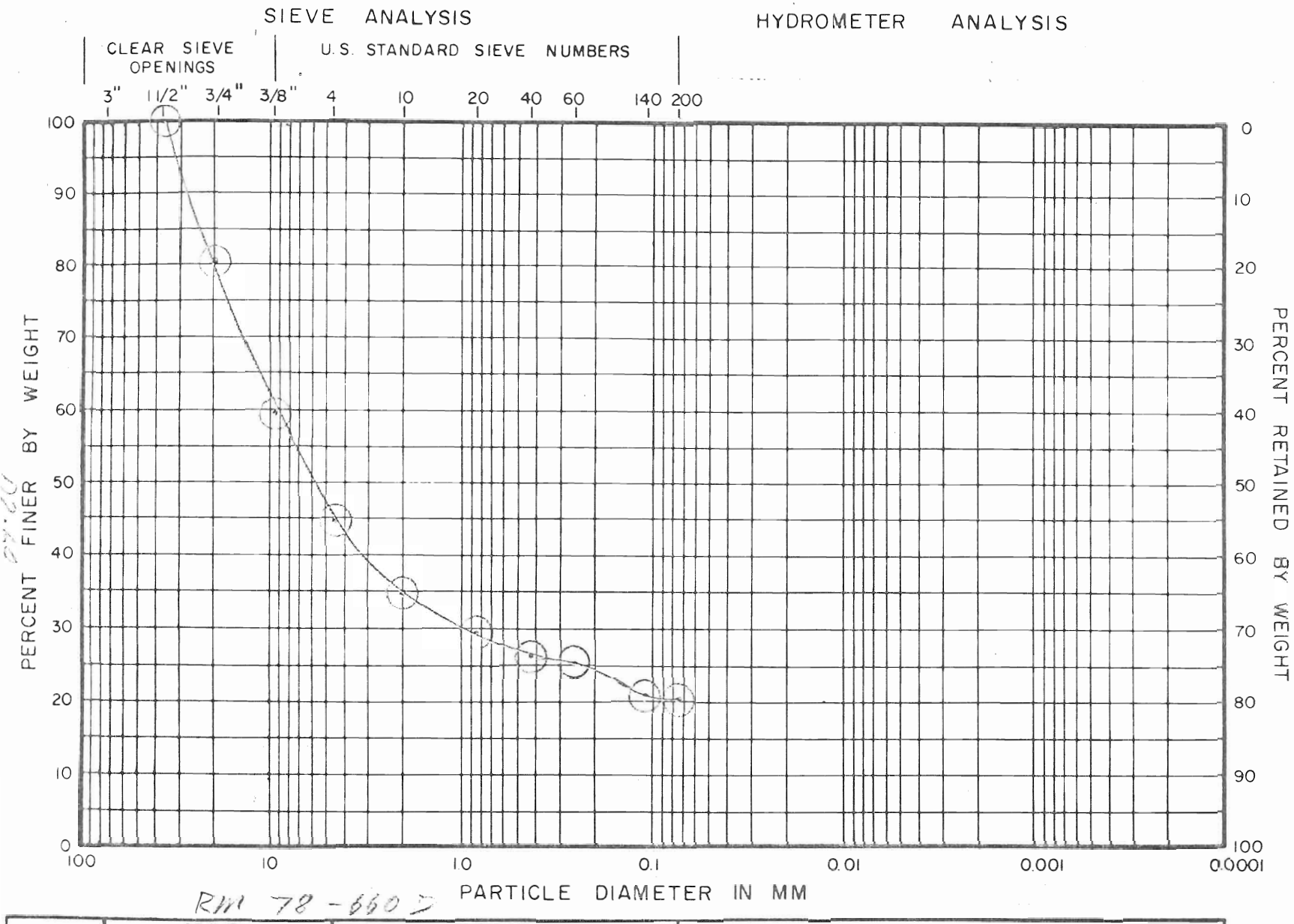
RM 78-660 D

CBL
6-11-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	I. ODell Cr	Gravel + Sand, coarse, [illegible]	[illegible]			
A-A						
Fan &	Shed A					

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



RM 78-660 >

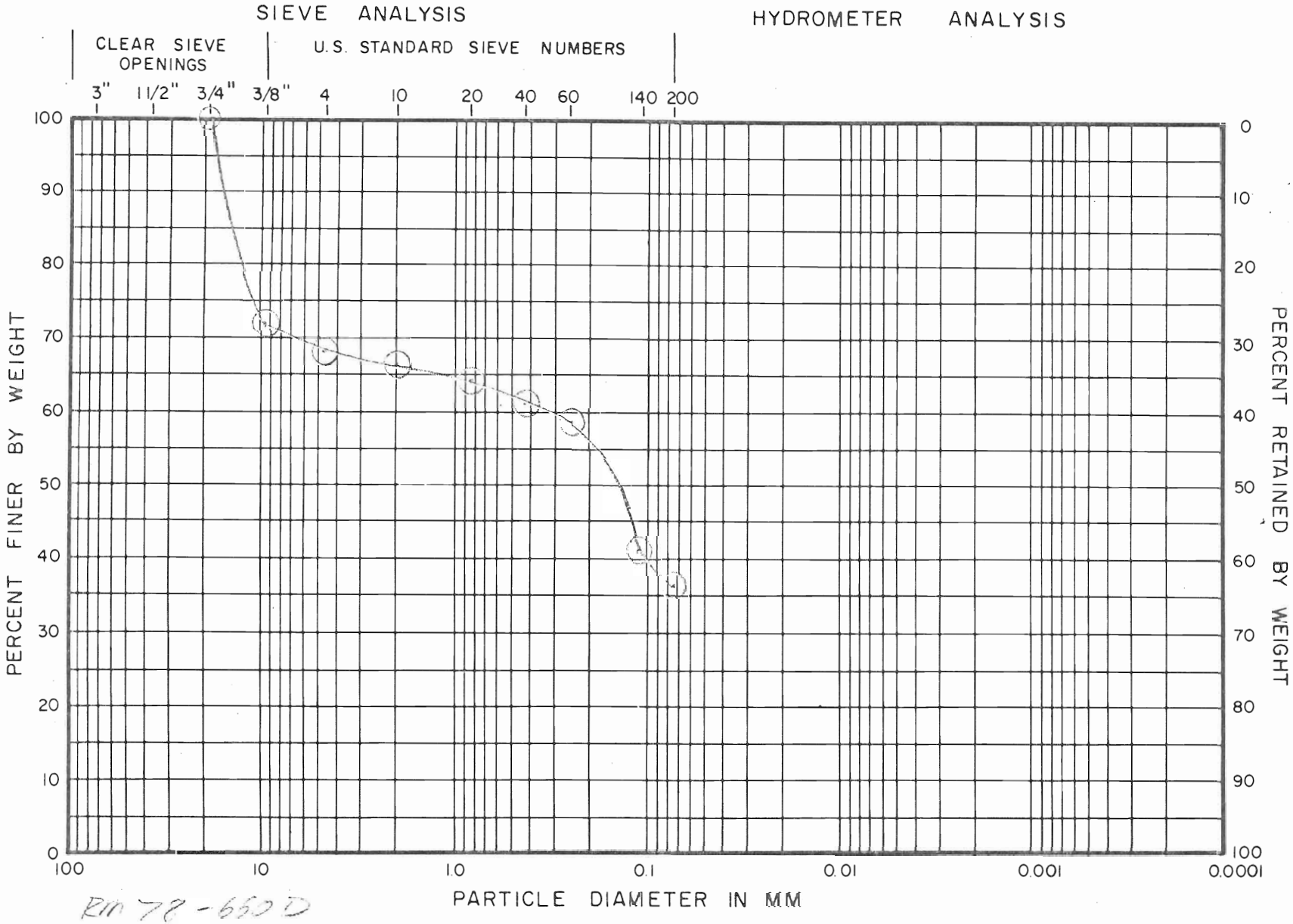
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
	Odell Cr	Gravel, sandy, silty	GM-SM			
A-A'	Shed A					
Bed						

C34
6-4-82
JS 6-24-82

IDAHO POWER

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



D2.45

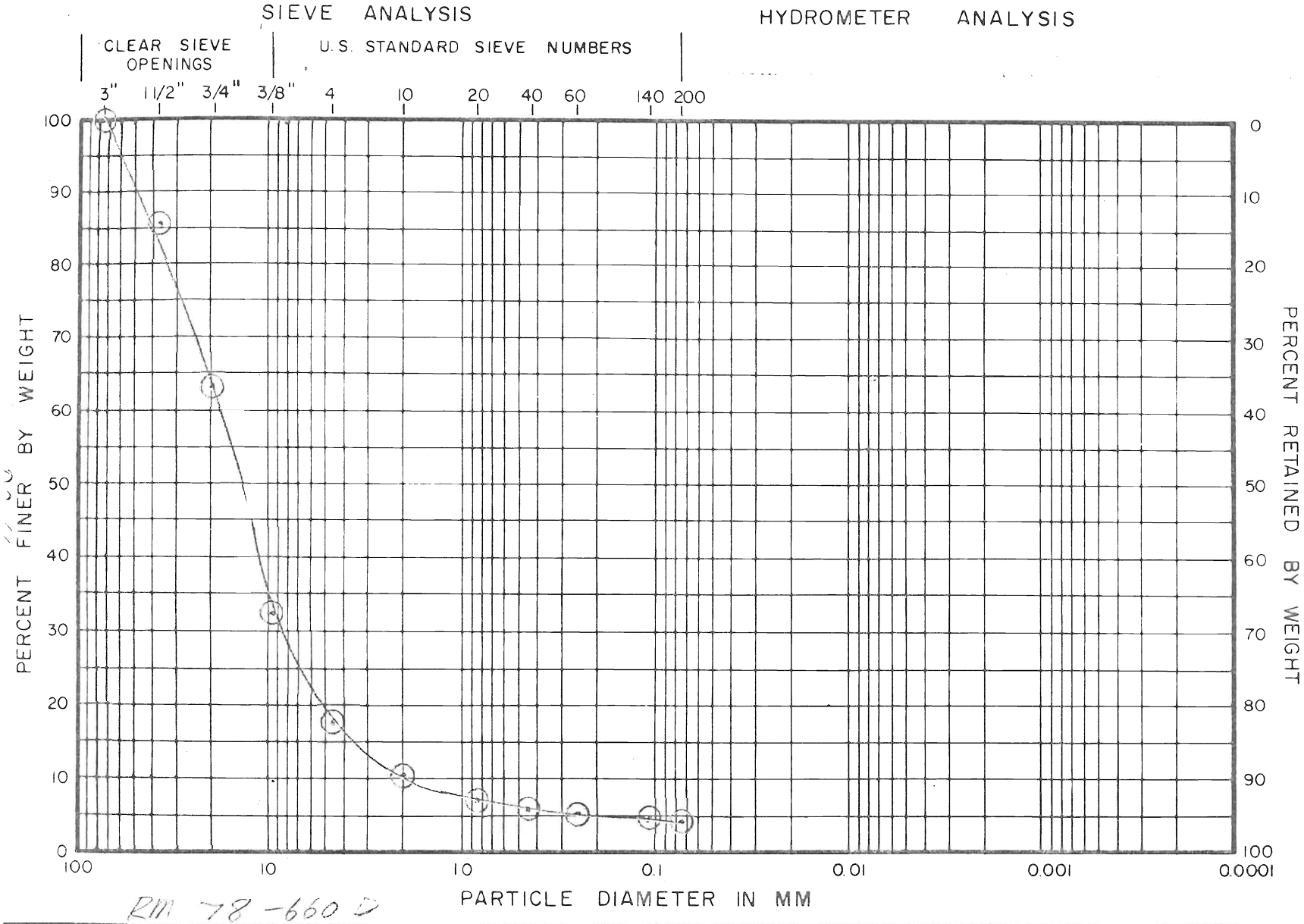
RM 78-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
	S. O'Dell Cr	Sand, occ gravel (chert), v. silty	SM			
	Shed A					
B-B						
Bank						

CBL
6-17-80
JS 6-24-80

DAIPROLONIA



RM 78-660 D

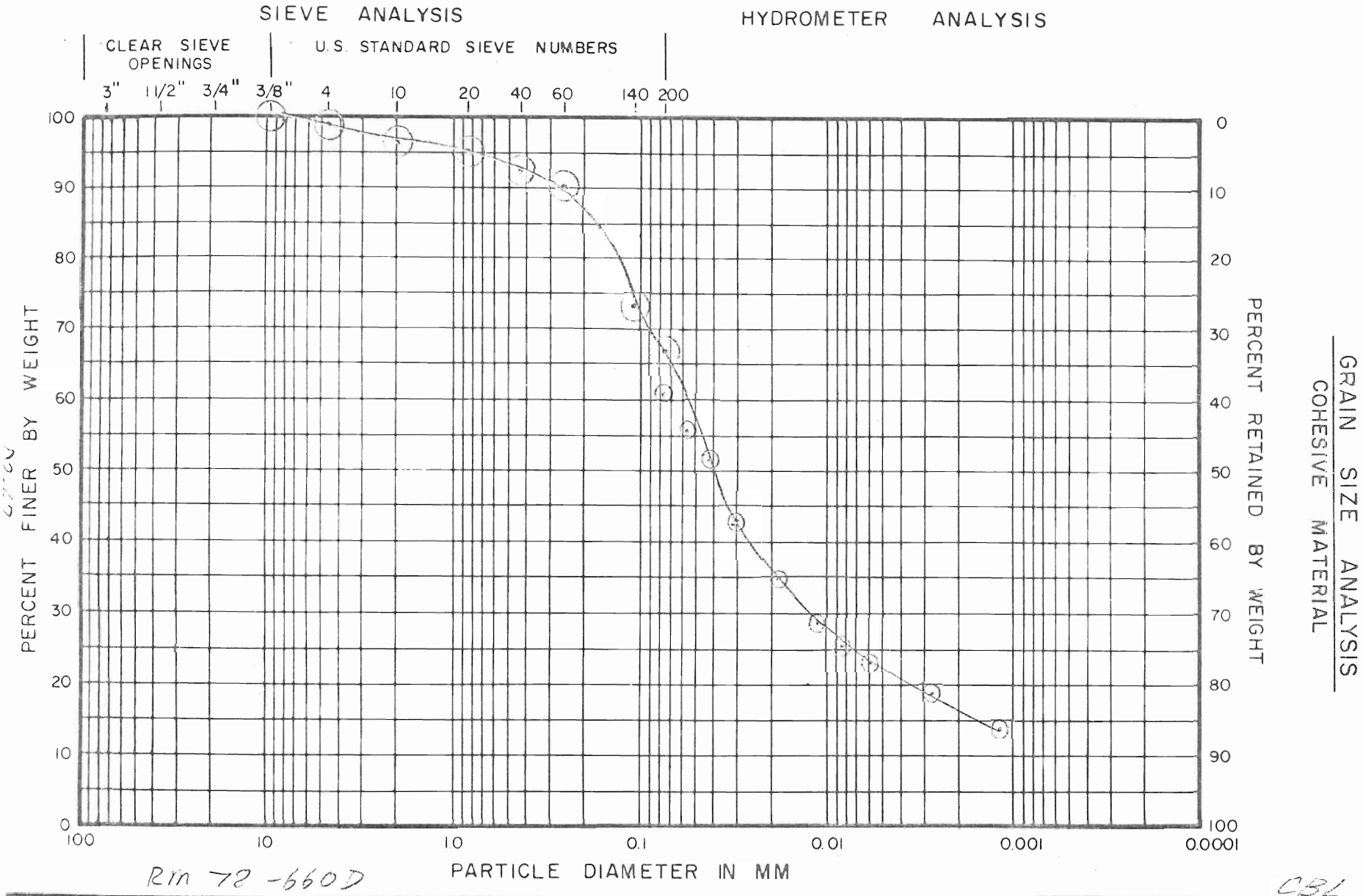
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	S. O'Dell CR.	Sand & Gravel, coarse to med., clean	GP			
B-B'						
Bed	Shed A					

CBL
5-11-83
JK 6-24-83

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

IDAPROLONTA



GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

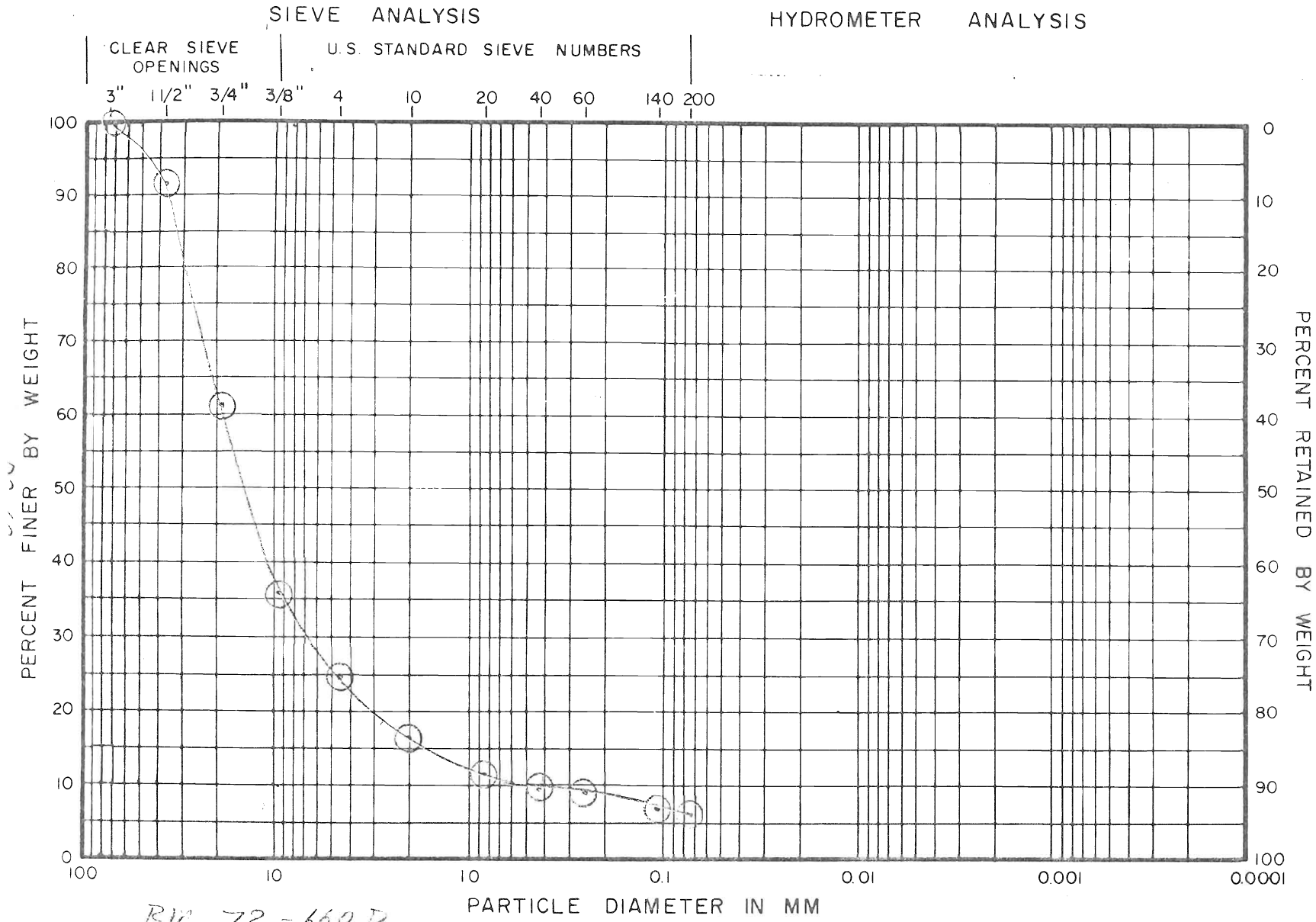
Rm 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
C-C'	S. O'Dell Cr	Silt, sandy, fine, sl clayey	ML			
Bank	Check H					

CBL
6-11-80
JS 6-24-80

DRAFT



RM 78-660 D

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

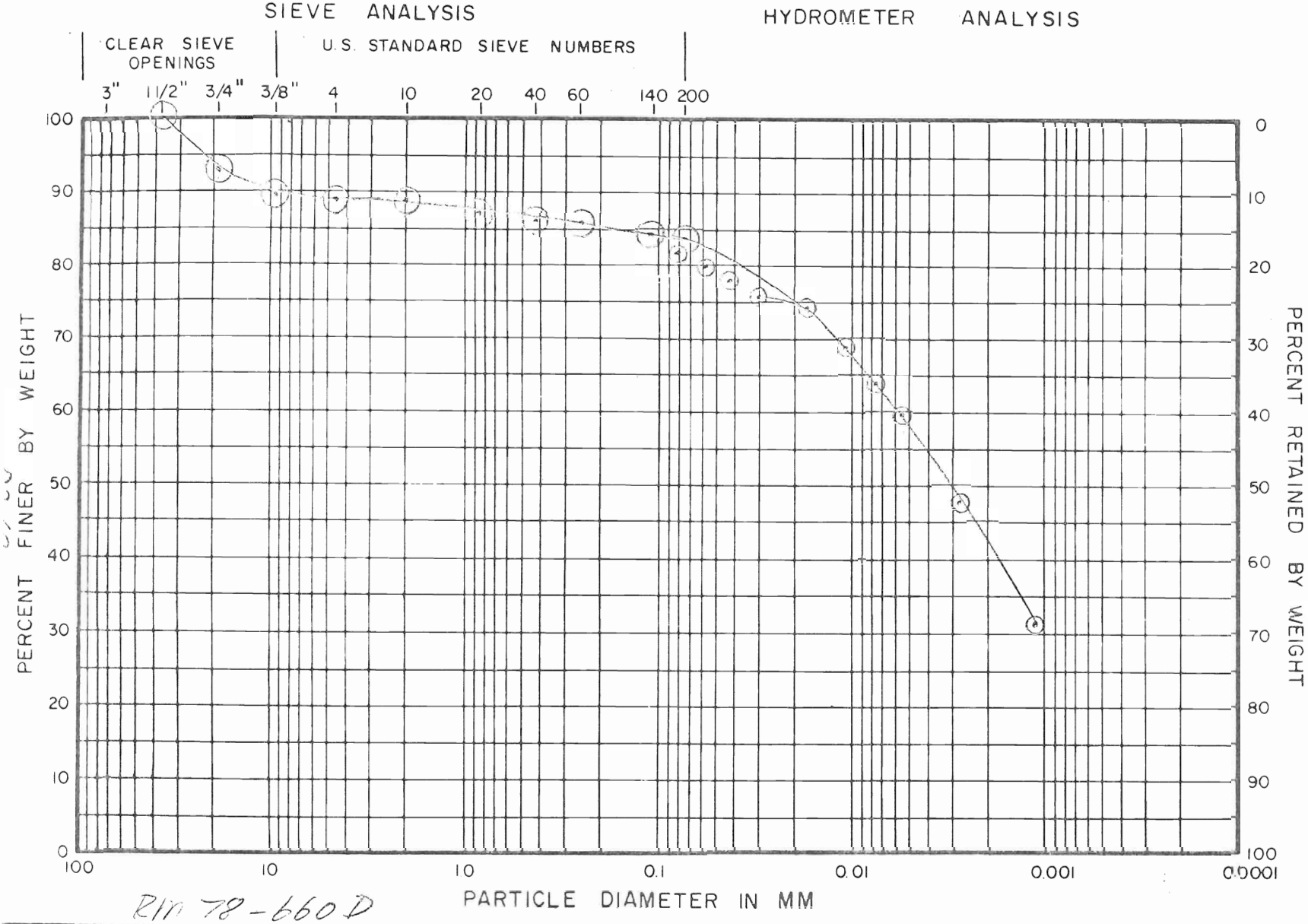
CBL
6-11-80

JS 6-24-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
		Sand + Gravel, coarse to med., clean	GP			
C-C'	S. 0 Dell Cr					
Bed	Shot 7					

DRAIPROLONIA



RM 78-660D

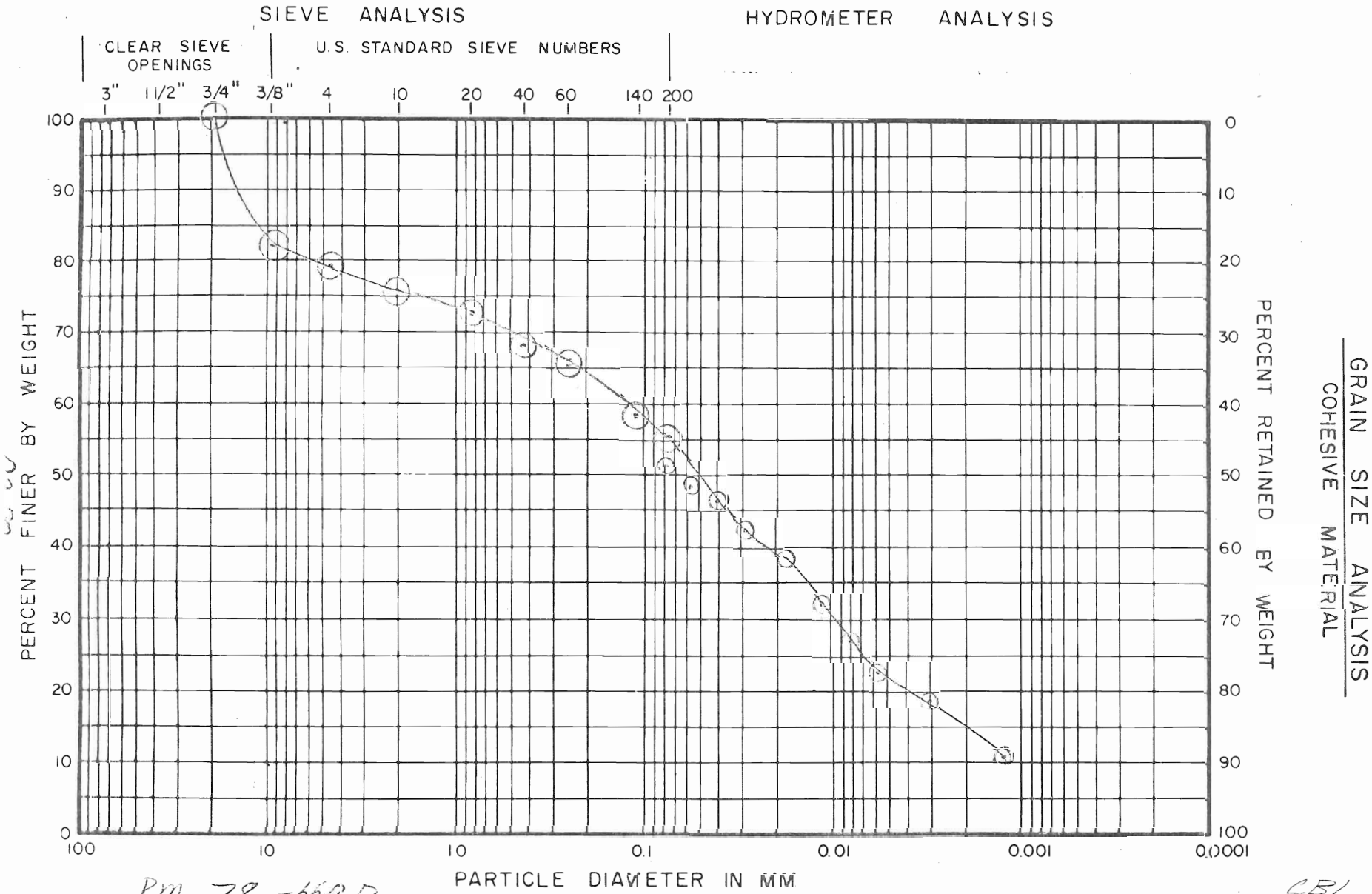
GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

DRIPPOLONIA

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	S. 0' Dell Cr	Silt, sl. sandy, v. clayey	ML			
H-H	Shed X					
Bank						

CBL
6-22-80
JS 6-24-80



GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

Rm 78 -660 D

CBL
6-11-80

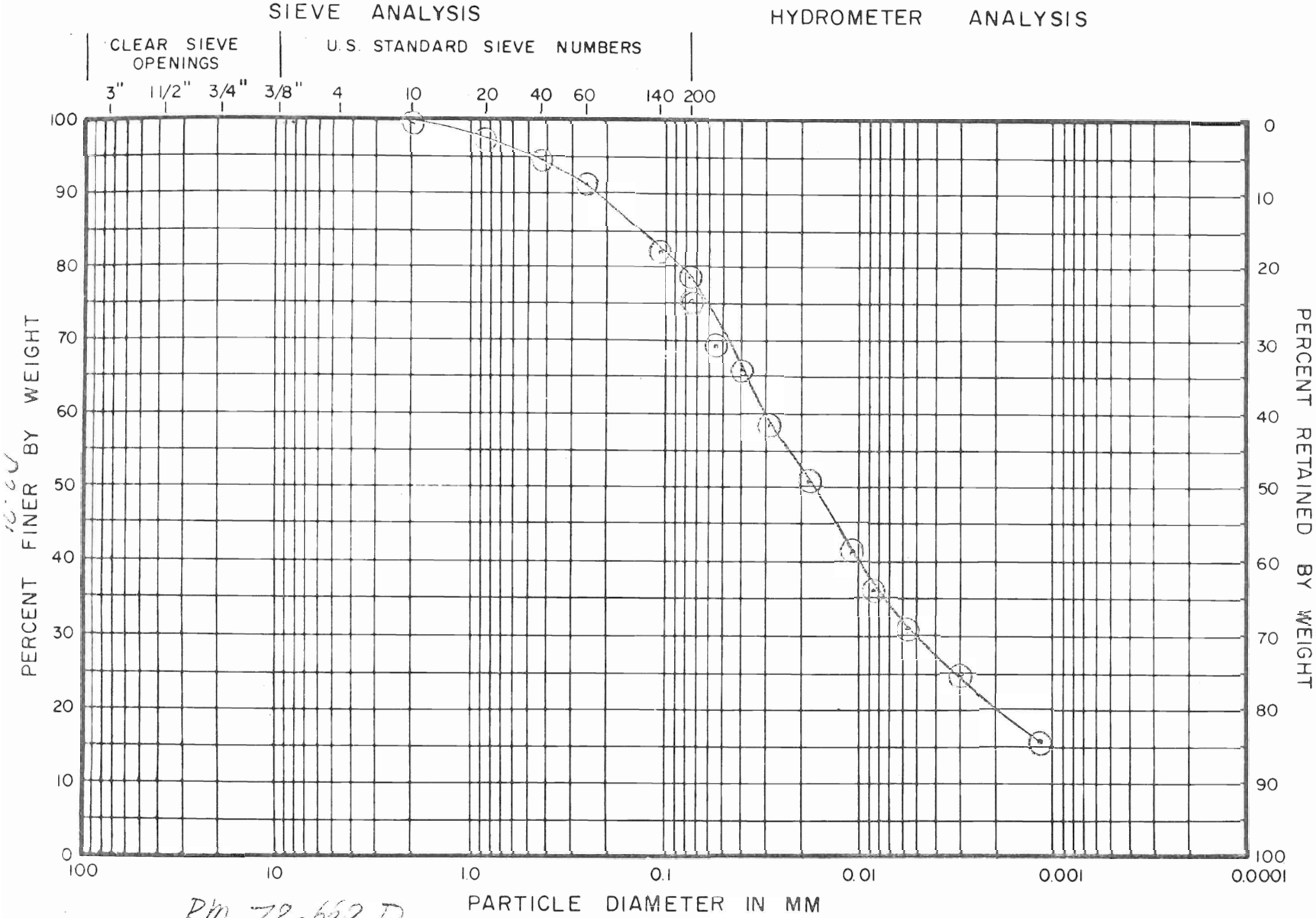
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	S. O'Dell Cr	Silt, v. sandy, occ gravel				
A-A'	Shed B					
B-B'						

DRAFT

DRAIPRDIONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

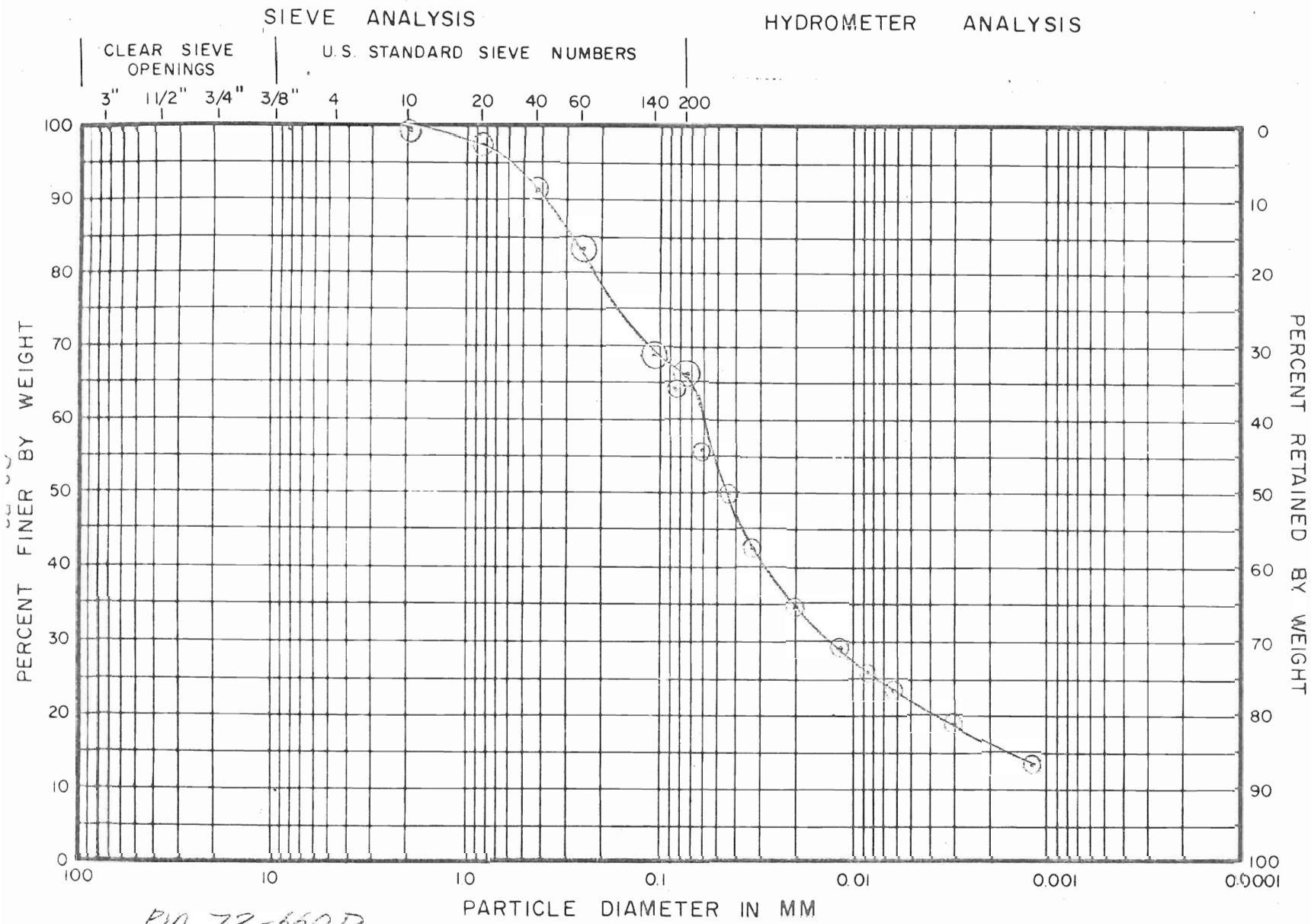


Rm 78-652 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
B-B' Bank	5.0 D02 Cr Sect B	Silt, sandy.	ML			

CBL 6-22-80
JS 6-24-80



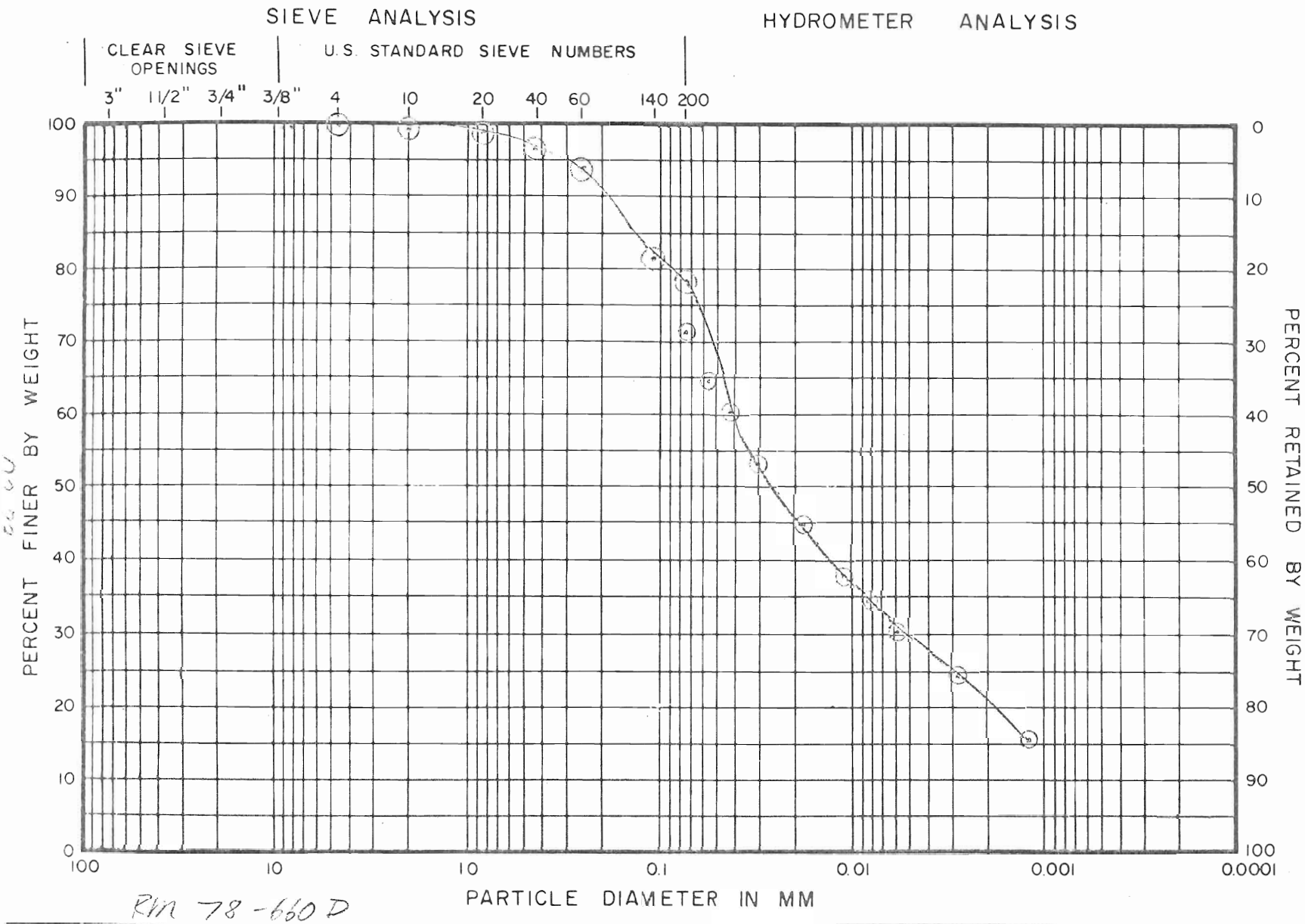
RIA 72-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
B-B	S. O'Dell Cr	Silt, sandy-fine, sl. clayey				
Bed	Grd 2					

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

CBL
6-[illegible]-80
JS 6-24-80



RM 78-660 D

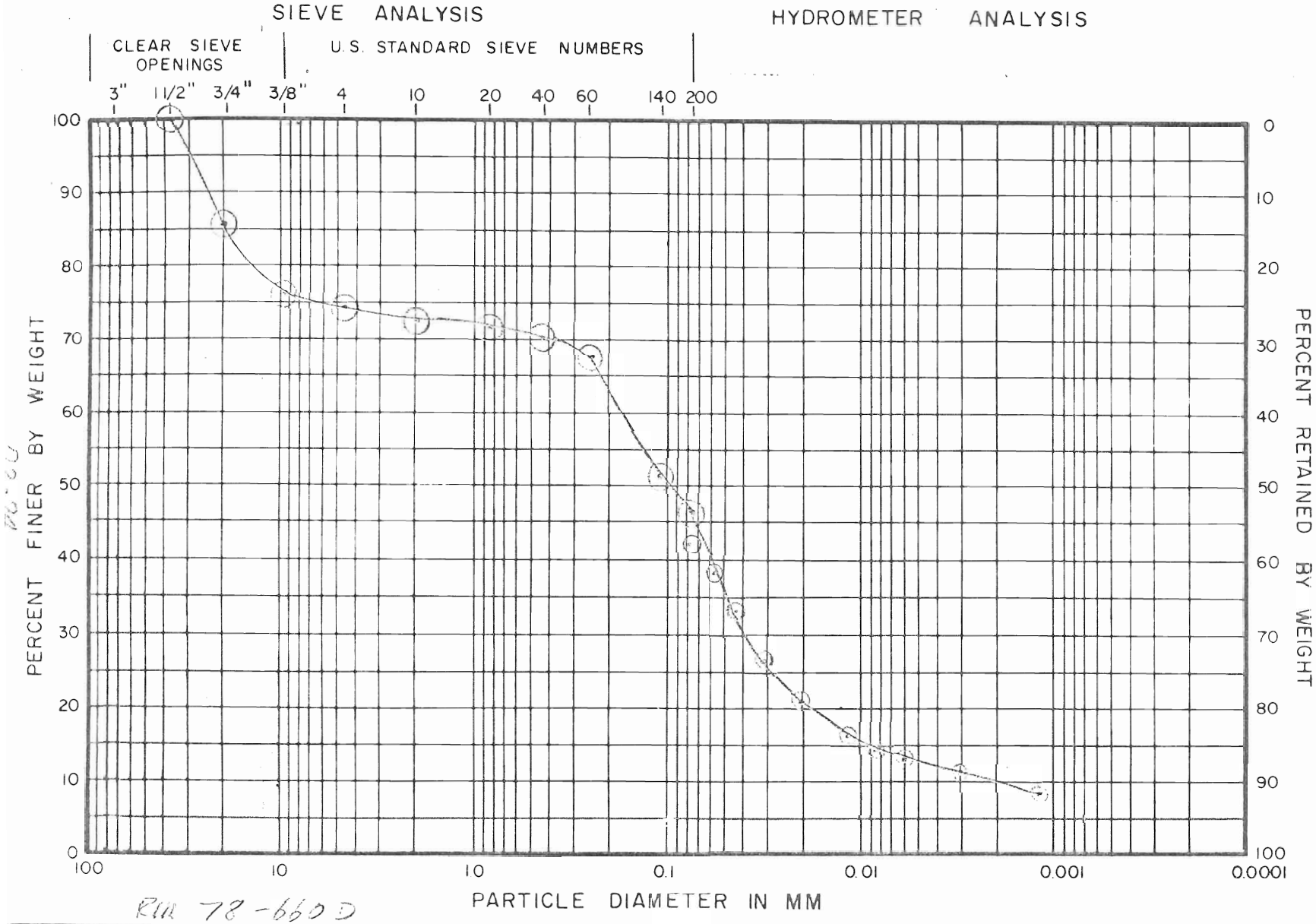
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
C-C' Bank	S. of Dell Cr Shed B	Silt, sl. sandy, sl. clayey	ML			

CBL 6-22-80
JS 6-21-80

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

DRAPER DIVISION



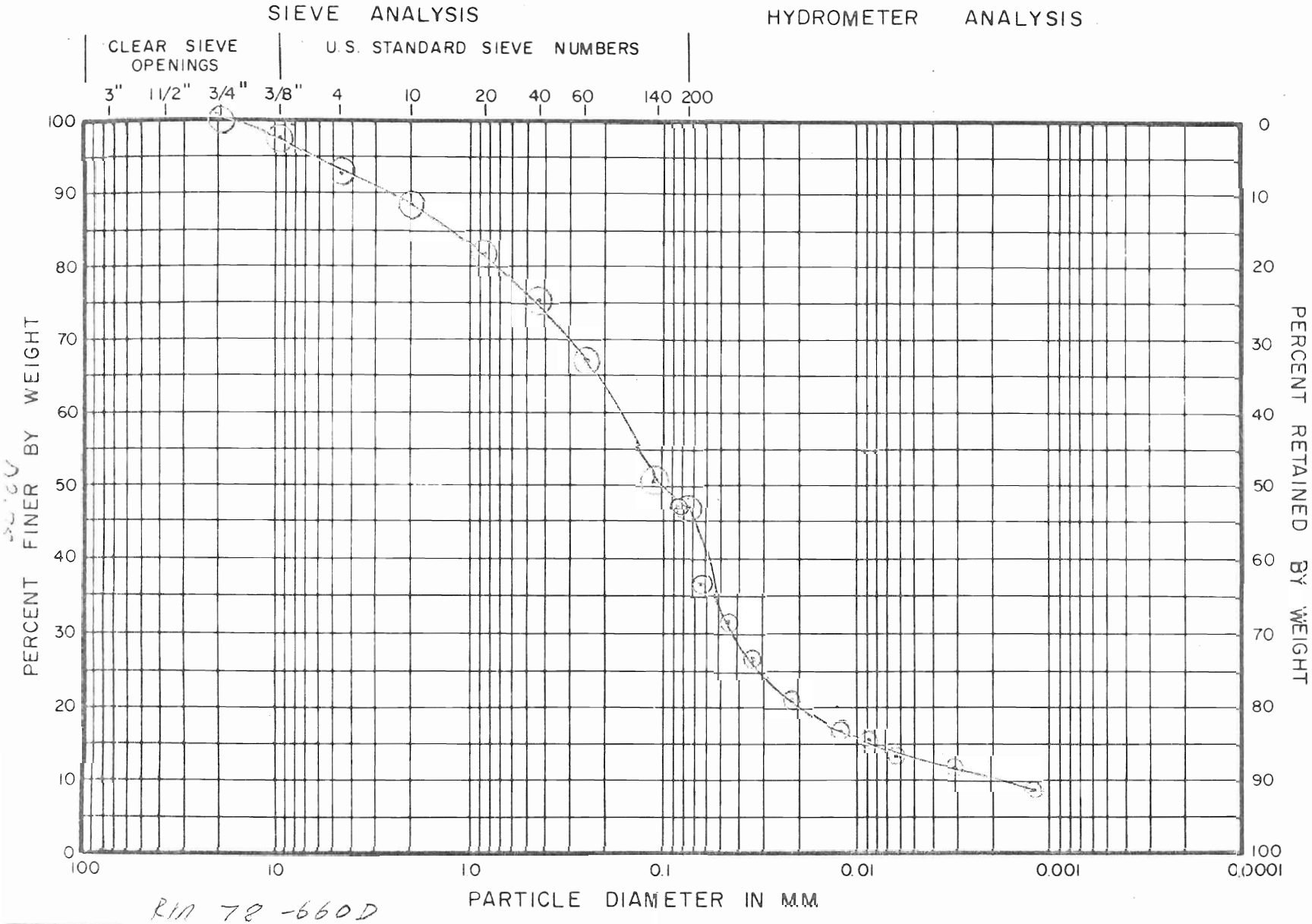
RIA 78-660 D

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

CBL
6-[illegible]-80
JS 6-24-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
			SM			
A-A'	S. O'Dell Cr	Sand, v. silty, occ. gravel				
Bank	Sled C					



RIN 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

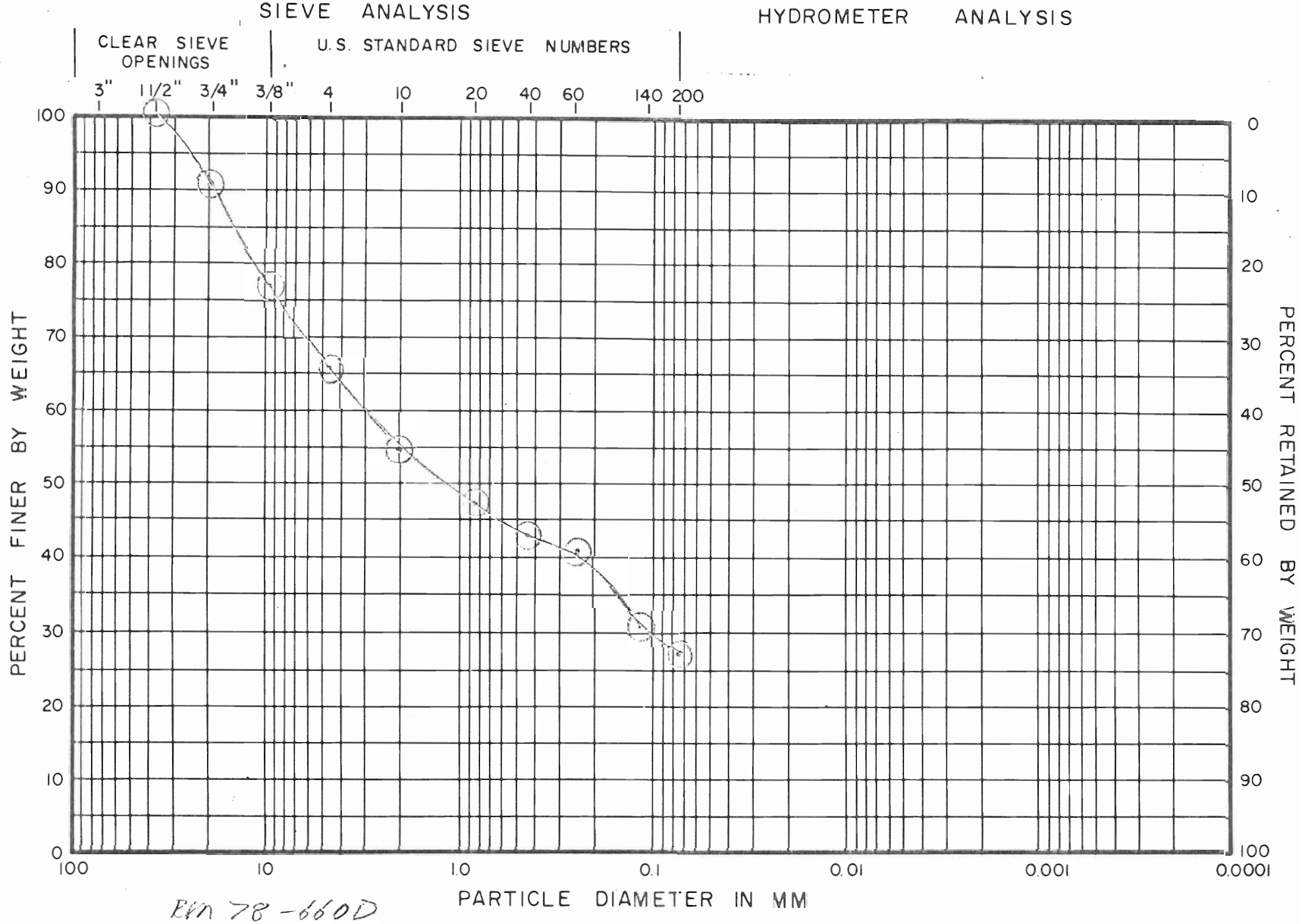
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	W/C, %
A-A'	S. 9' Bell Cr	Sand-silt, orc. gravel	SM			
Bed	Sand C					

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

DRAIPDIGNIA

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



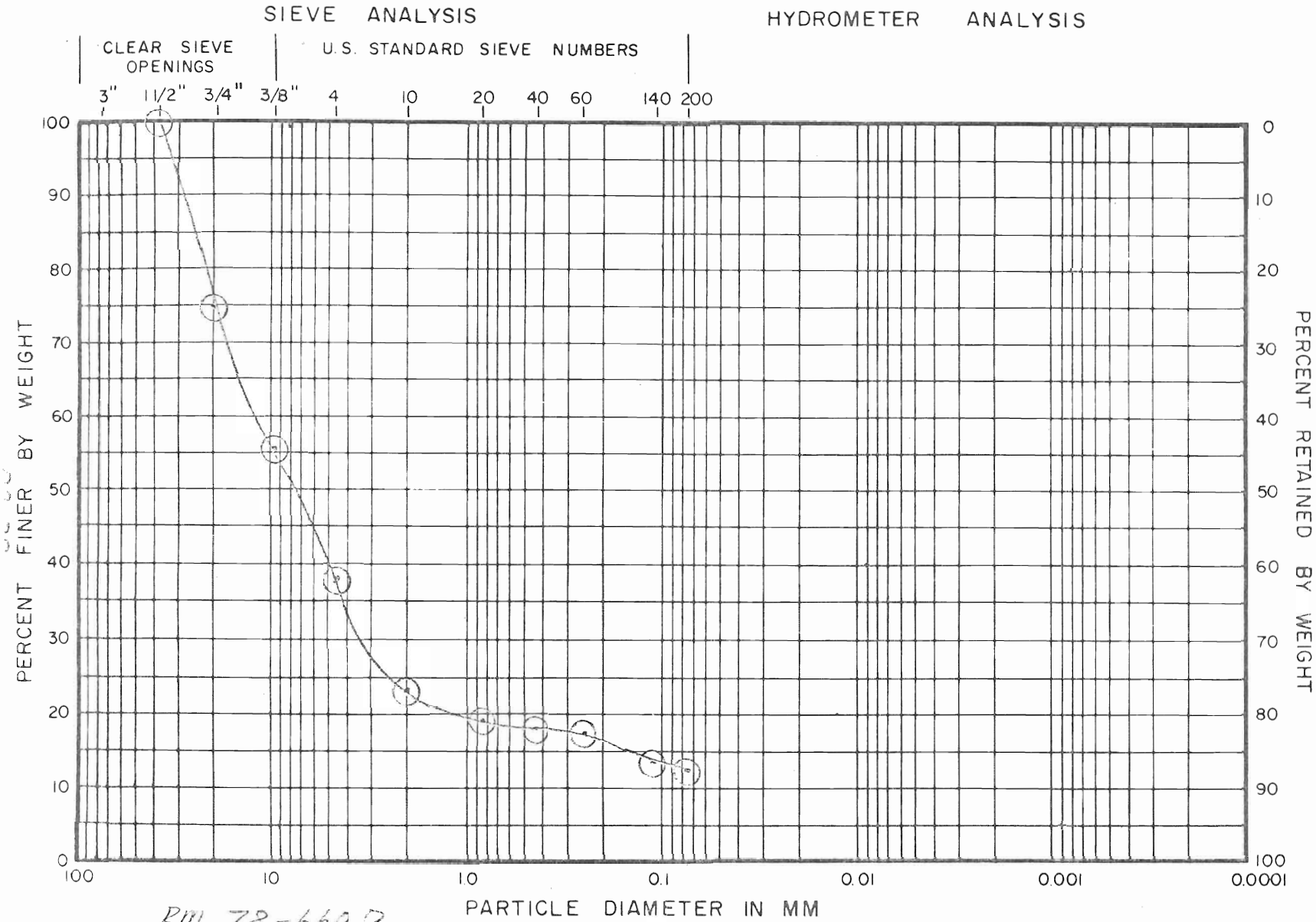
Em 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	S. O'Donell Cr	Sand & Gravel, med to coarse, silty	GM-SM			
B-5						
30-35	Shed C					

CBL
6-17-80
JS 6-24-80

02-76



RM 78-660 D

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

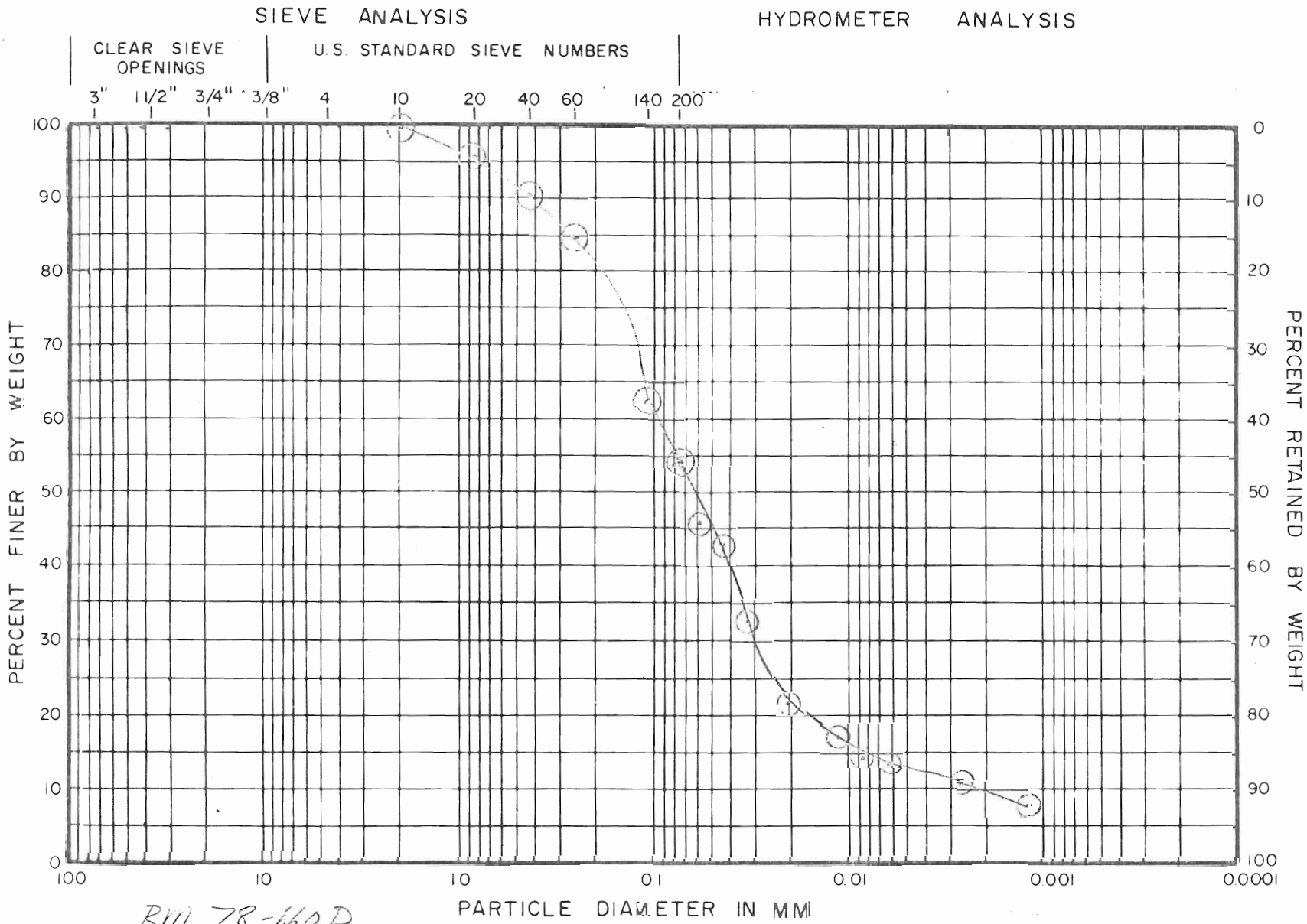
PALPROLONIA

CSL
6-11-80
JS 6-24-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	LL	PL	WC,%
		Sand w gravel, coarse, sl. silty	GP-GM			
B-8	S 0 D 8.8 Cr					
Bed	Soil C					

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



RM 78-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{60}	C_u	WC. %
C-C'	S. O'Neil Cr.	Sand - silt	ML - SM			
Bar C	Shell C.					

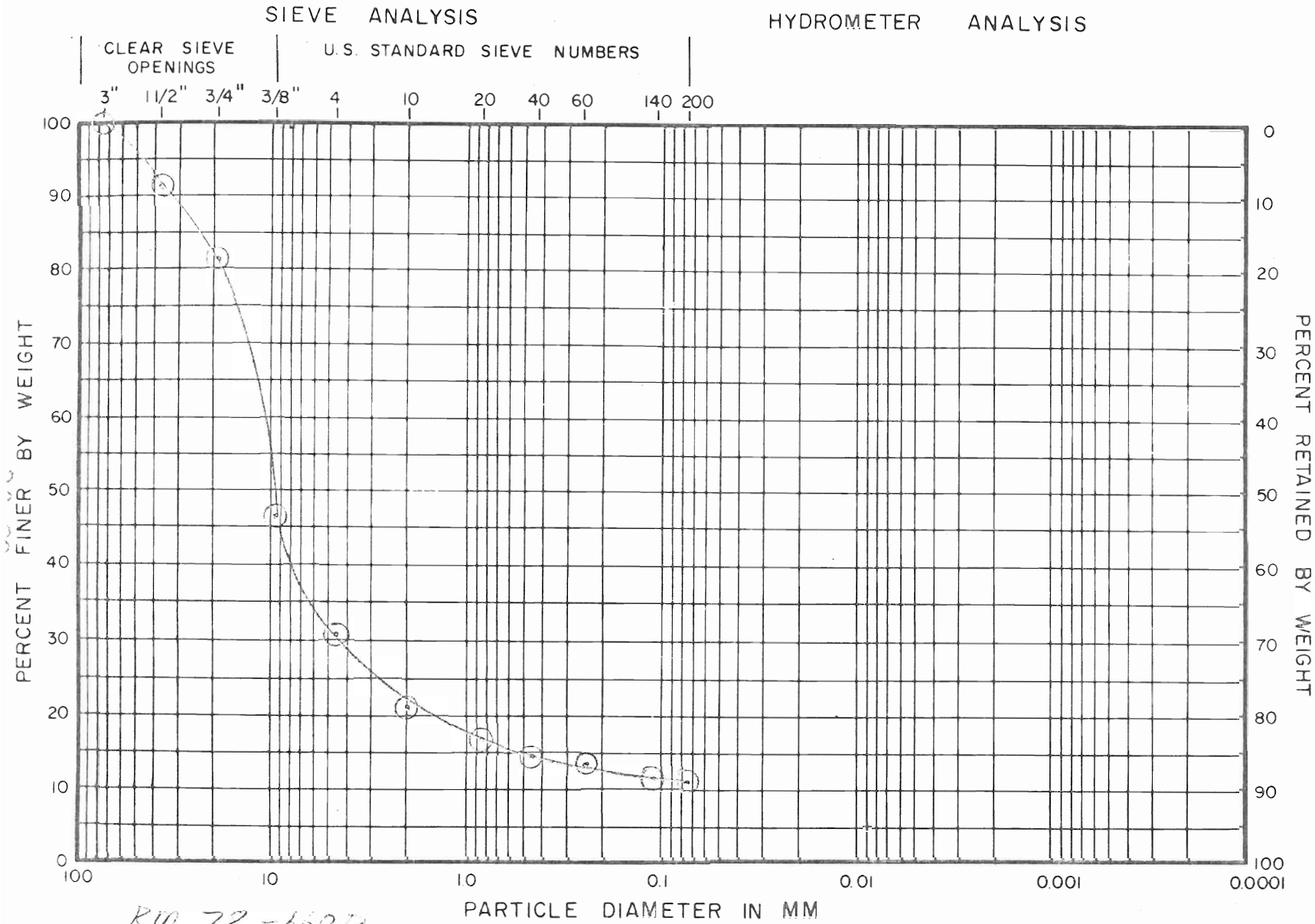
CBL 7-2-80

ad 7/30/80

02-90

DAMPIONLA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



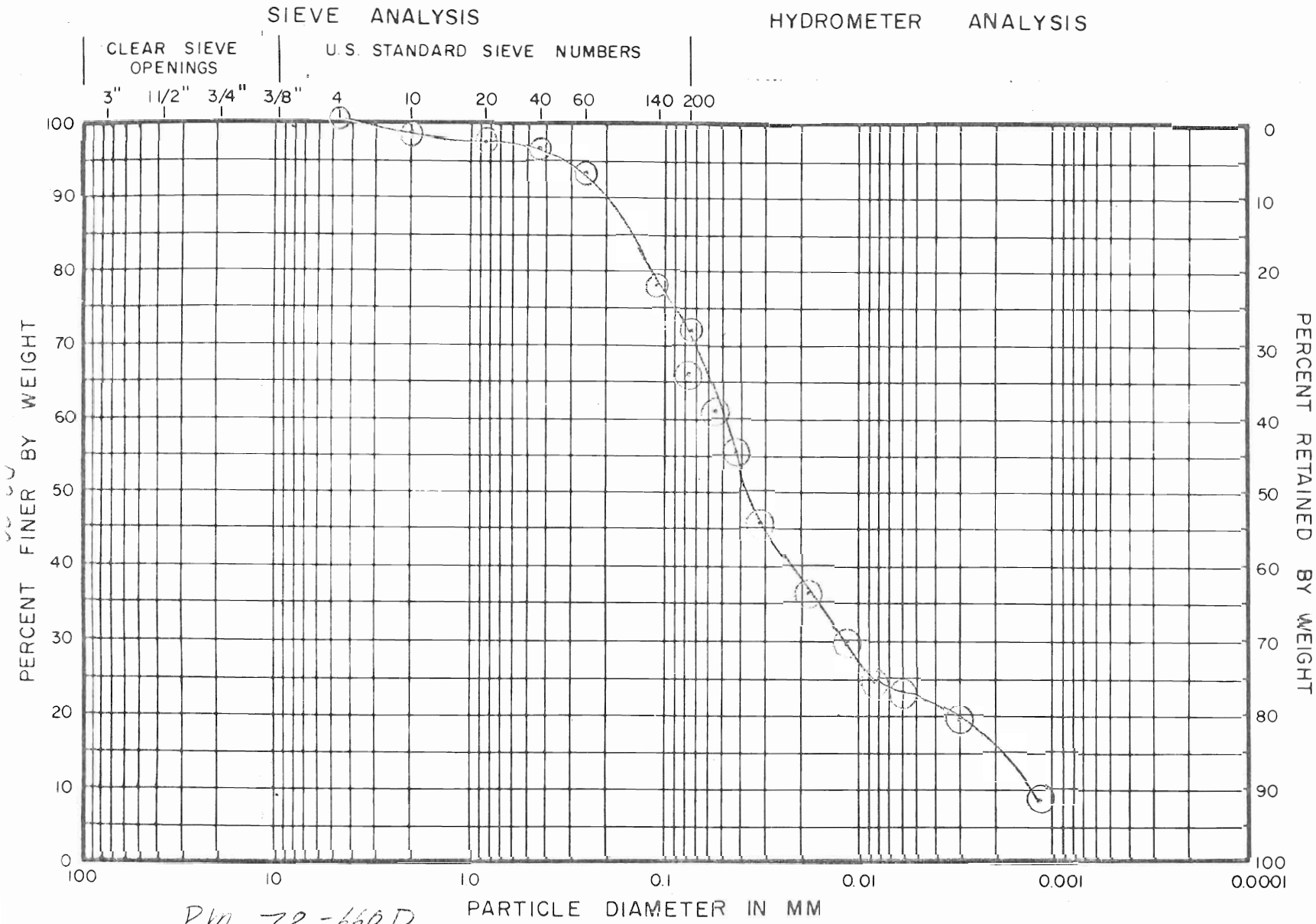
RM 78-6502

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
C-C'	S. O'Dell Cr	Gravel & sand, coarse, sl. silty	GP-GM			
Bed	Shed C					

CBL
6-11-80
JS 6-24-80

DRAIPROFILONIA



RM 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
D-D' Bank	S. 0' Dell Cr Shed C	Silt, sandy, sl. clayey	ML			

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

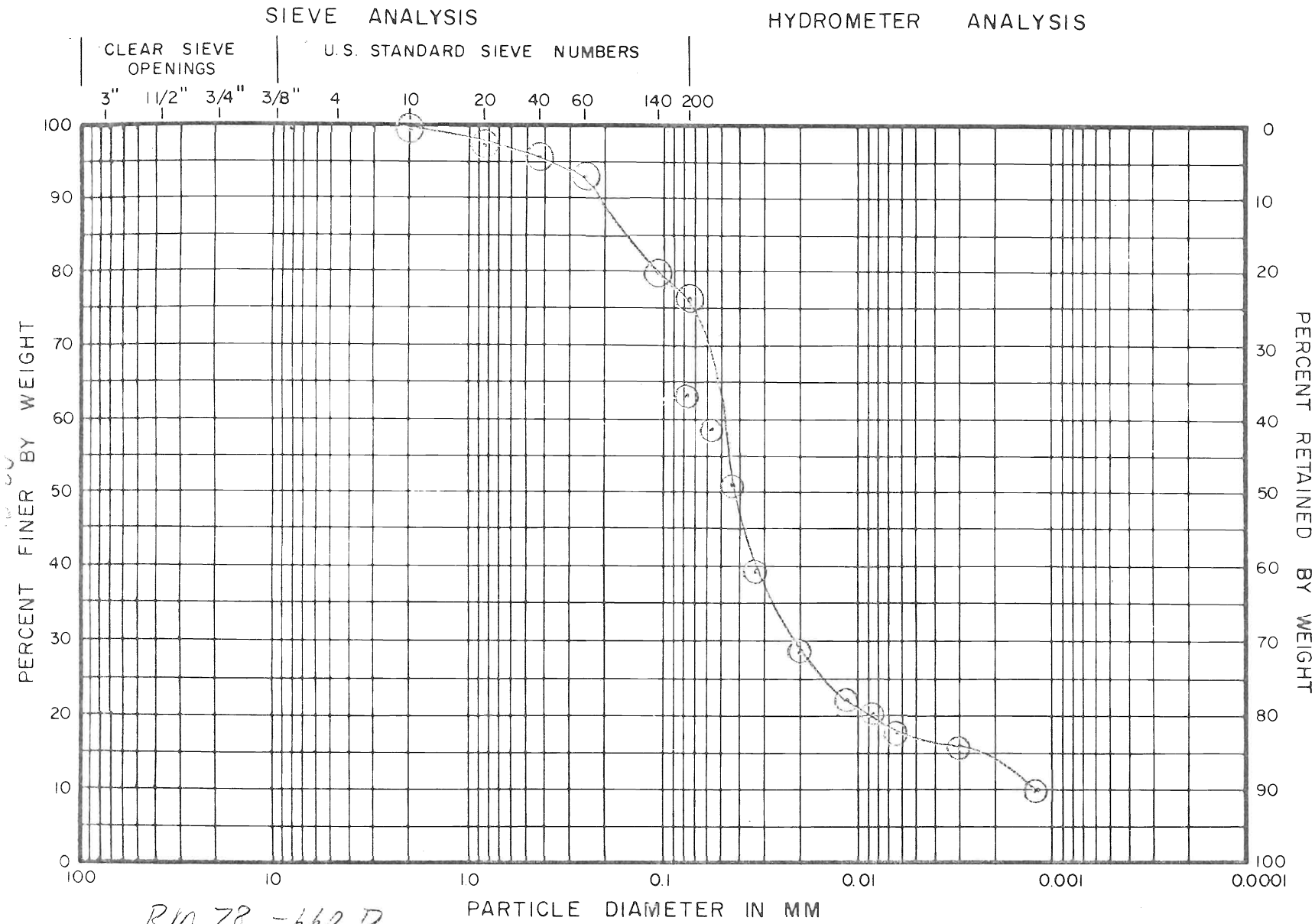
PROJECT

CBL 6-22-80

JS 6-[illegible]-80

DRAIPROLONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



RM 78 -669 D

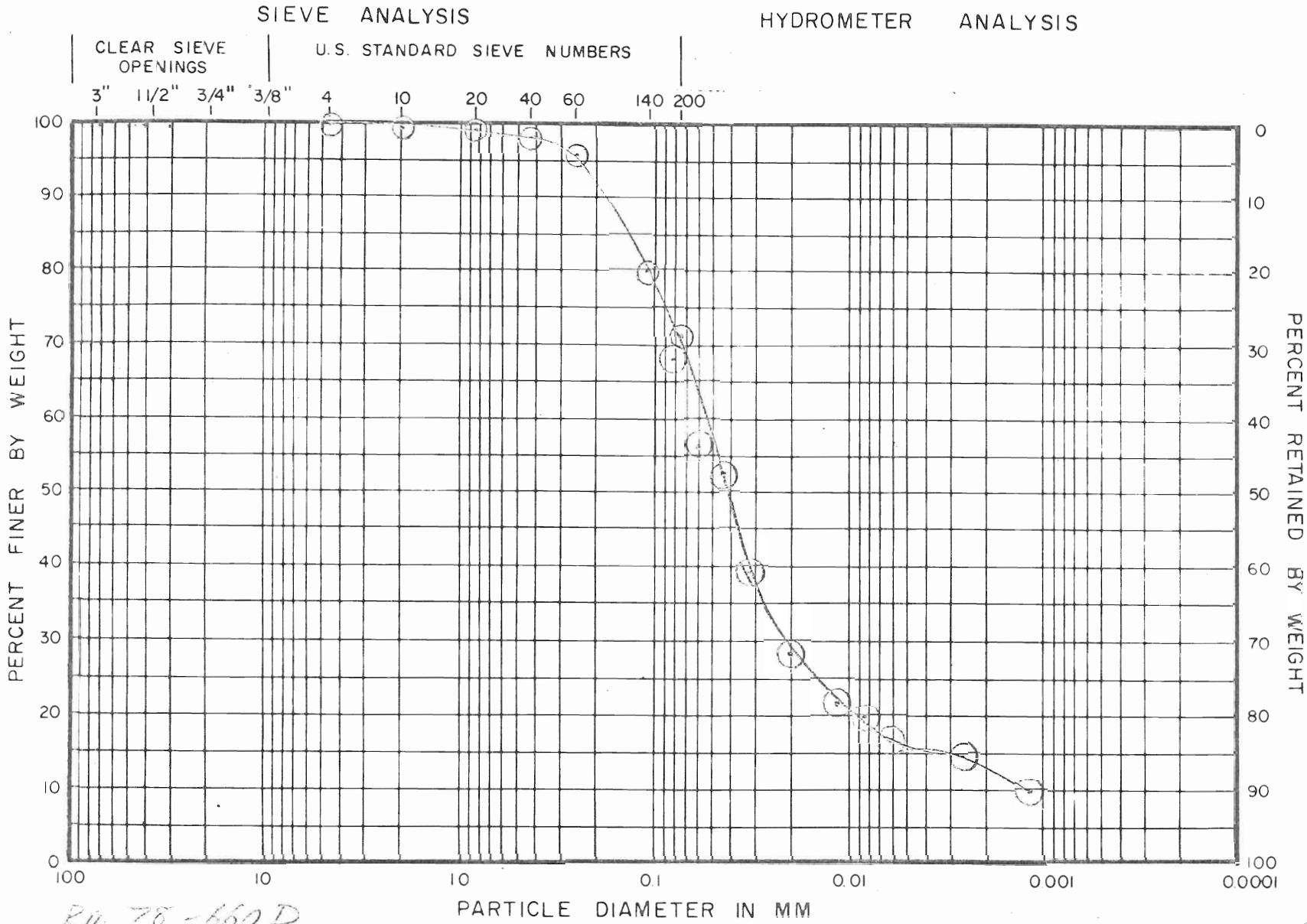
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	S. O'Dell Cr Shed C	Silt, sl. sandy, sl. clayey	ML			
D-D Bed						

CBL
6-22-80

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



Rn 78-660 D

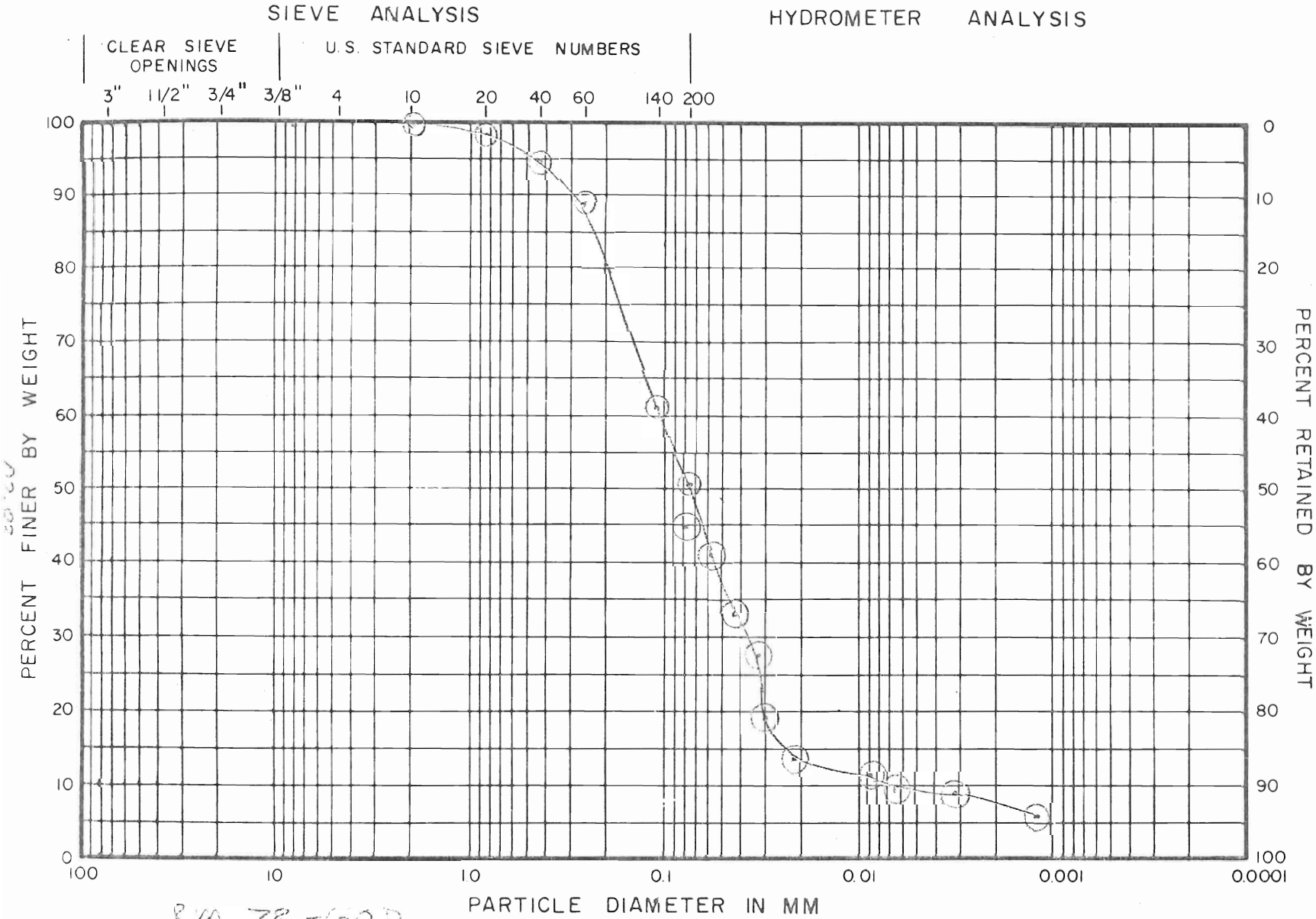
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	W.C. %
	S. O'Dell Cr					
		Silt, sandy, sl. clayey	ML			
E-E'	Shot C					

OBL
7-2-80

GP
7/25/80

02-82



RM 78-600D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

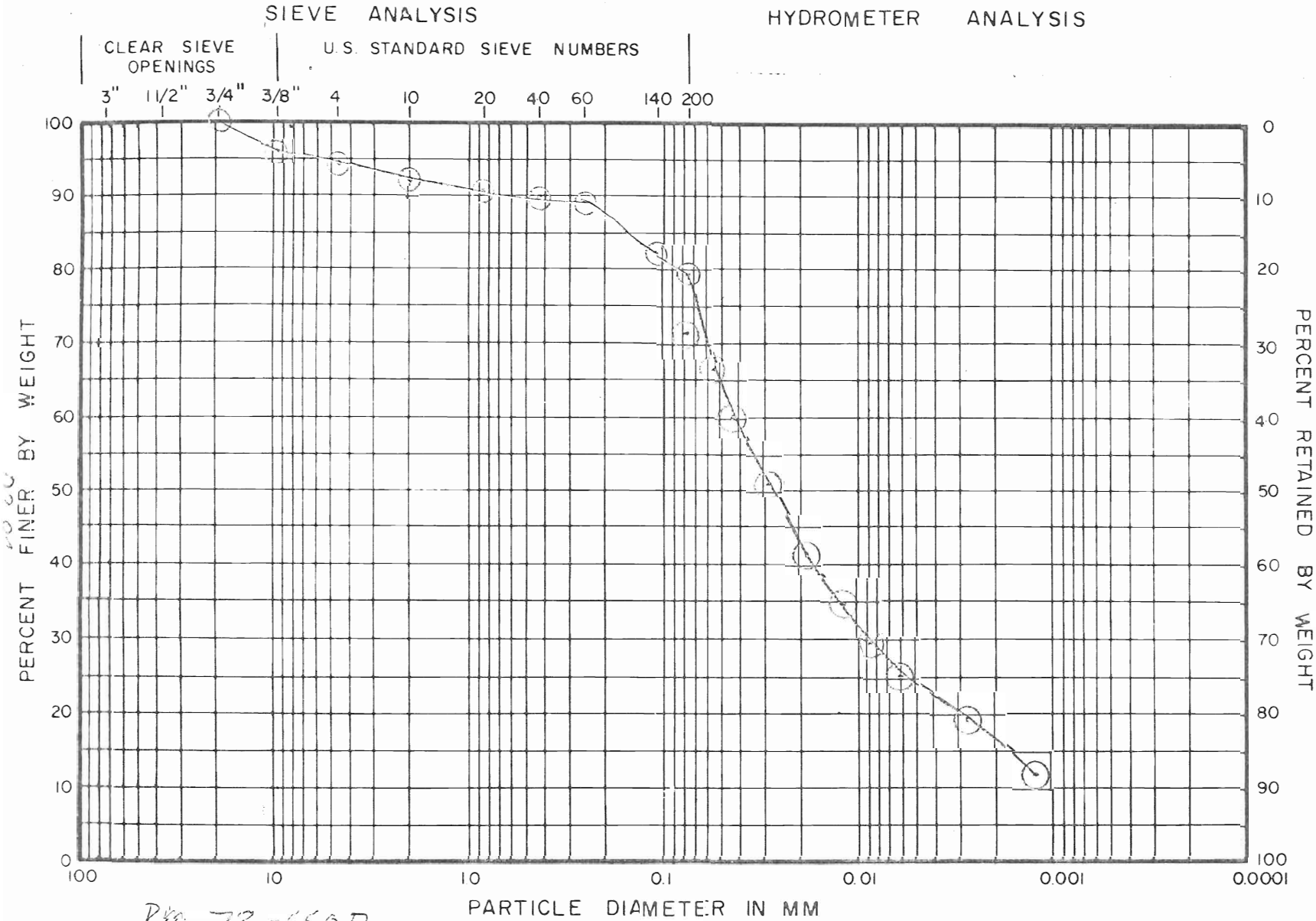
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
E-E'	S. O'Doll Cr	silt-sand, fine	SM-ML			
upper	Sheet C					
Bank						

CBL
6-11-80

JS 6-24-93

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

IDAPIDONIA



GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

Rm 78-550D

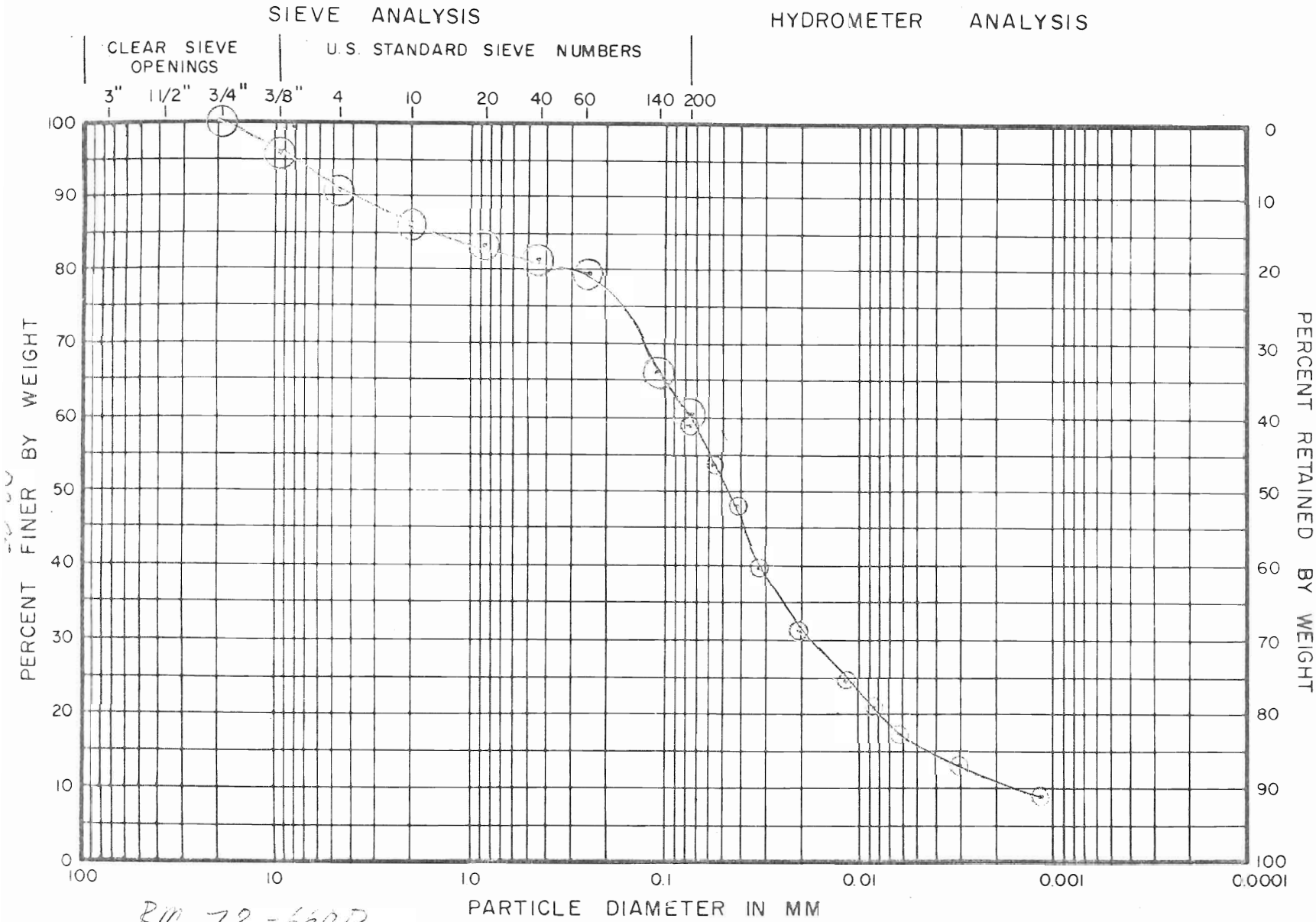
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	W.C.,%
H-F1	S. 0 Dell C-	Silt, occ. gravel, sl. sandy, sl. clayey	ML			
Bank	Shell E					

CBL
6-22-83
JS 6-29-83

DRAIPPOLONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

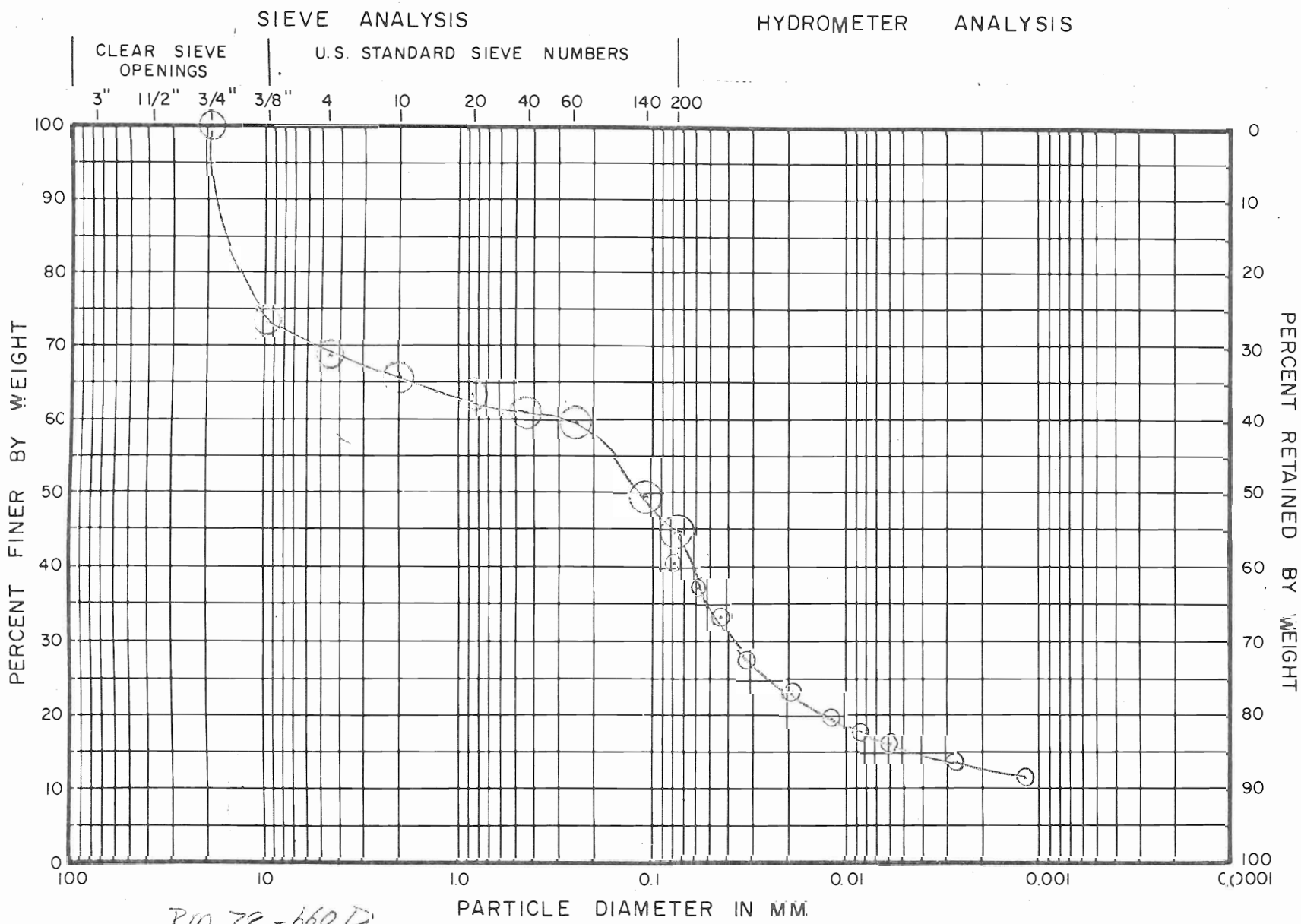


RM 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
A-A	S. O'Doll Cr	Silt, v. sandy, occ gravel	ML			
Rd	Shed E					

CBL
6-11-80
JS 6-24-80



GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

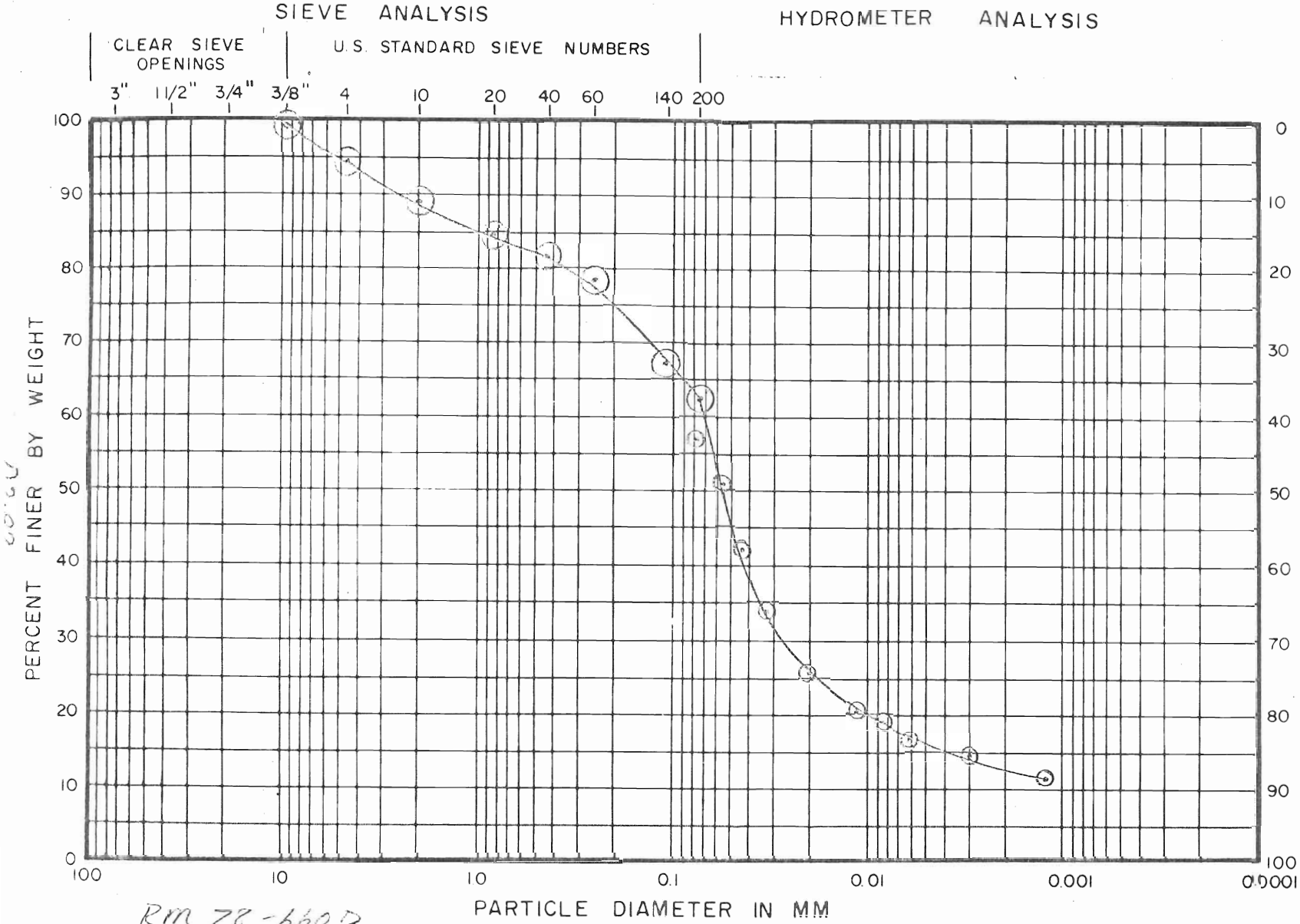
D'APPOLONIA

RM 78-660D

CBL
6-16-80
JS 6-24-80

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	S. Old Ch	Sand, Gravelly (clinkers), v. silty				
E-E'						
Sand	Shed E					



GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

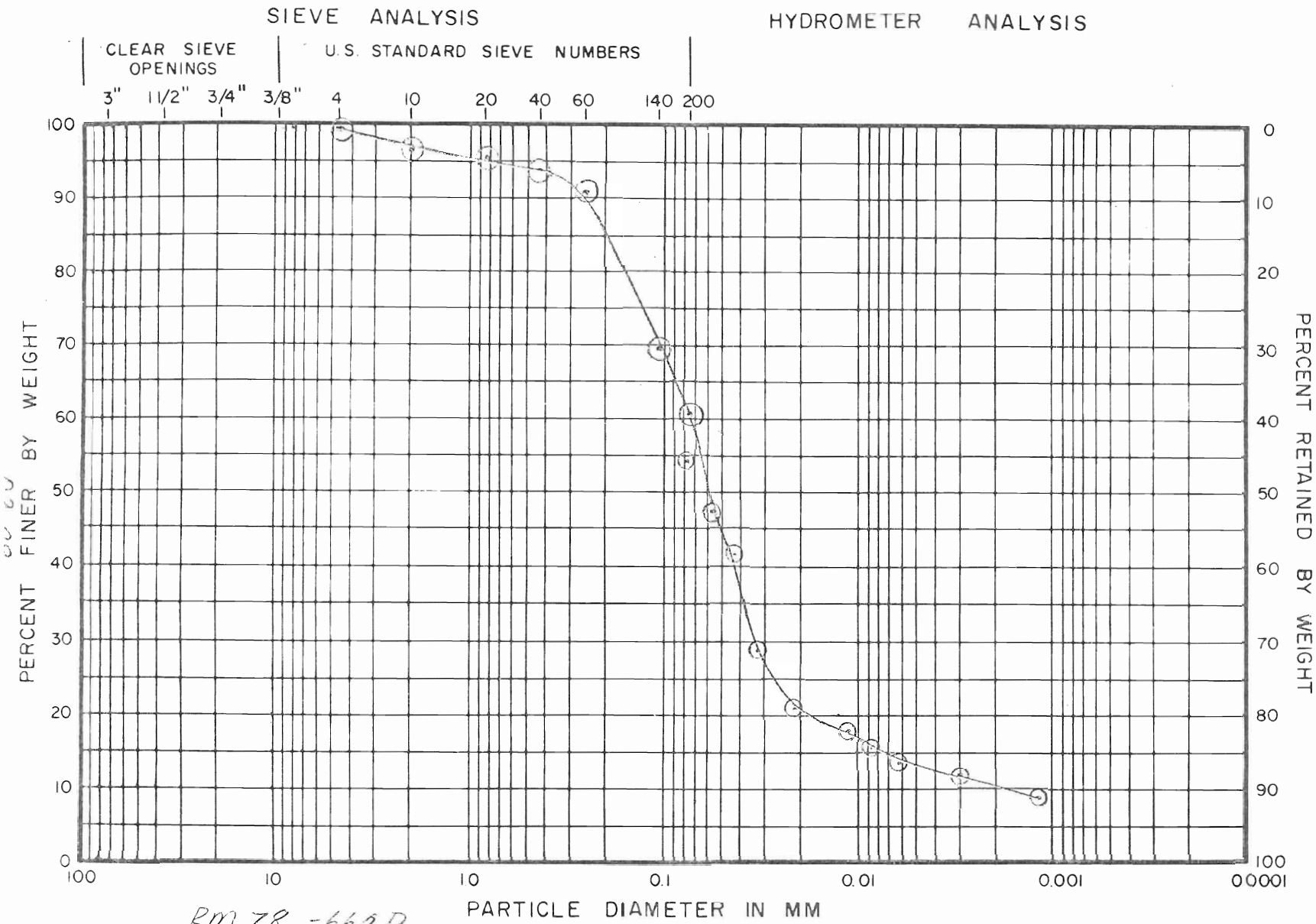
RM 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
B-B	S. Odell Cr	Silt, v. sandy, occ gravel				
Bed	Shed E					

CBL
5-11-80
JS 6-24-80

DAMPIERLONIA



RM 78 -660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
C-C'	S. O'Dell Cr	Silt, sandy-fine				
Bm K	Shed E					

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

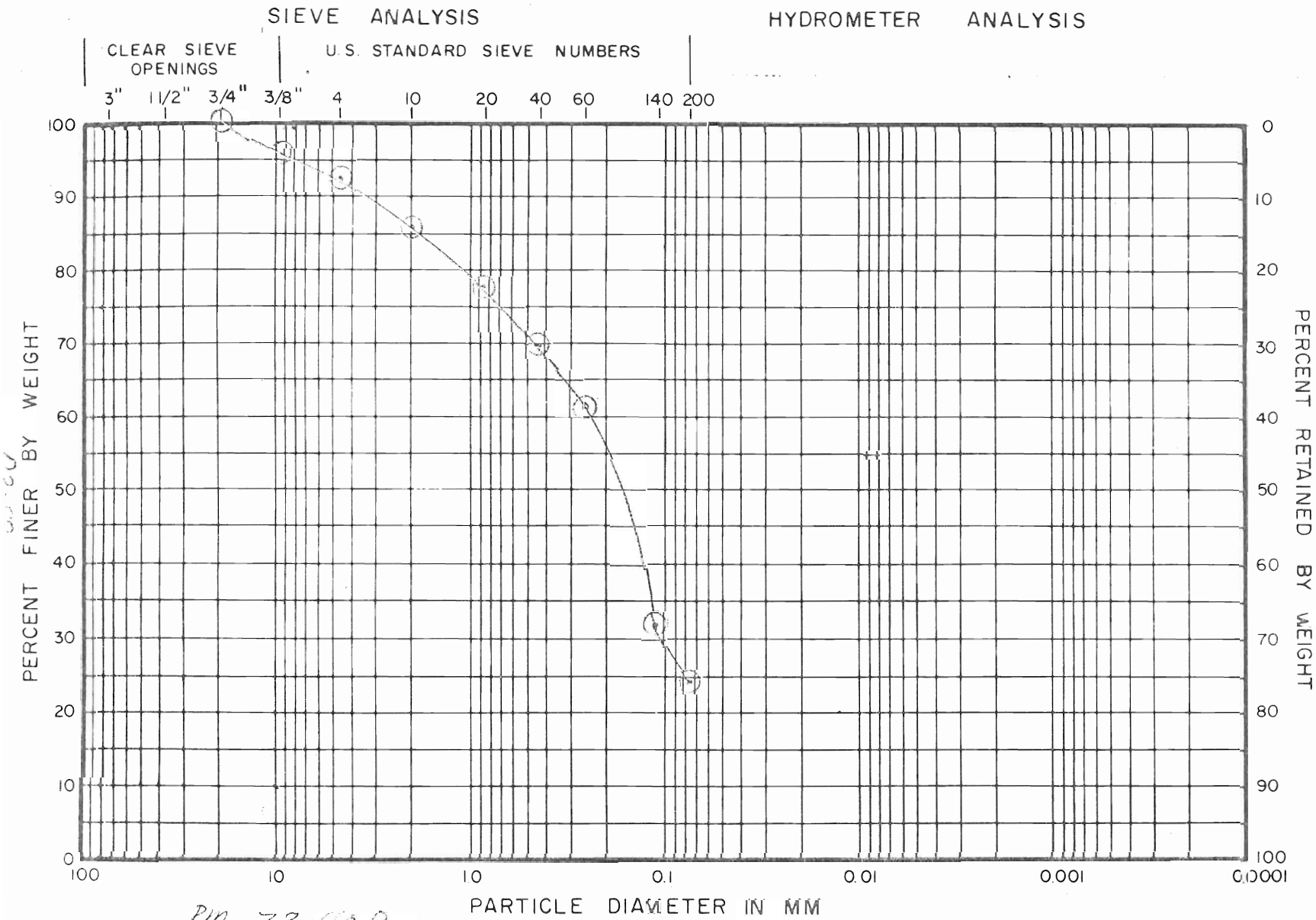
CBL
6-11-80

JS 6-24-80

DRAIPRDLONYA

IDAHO POWER COMPANY

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

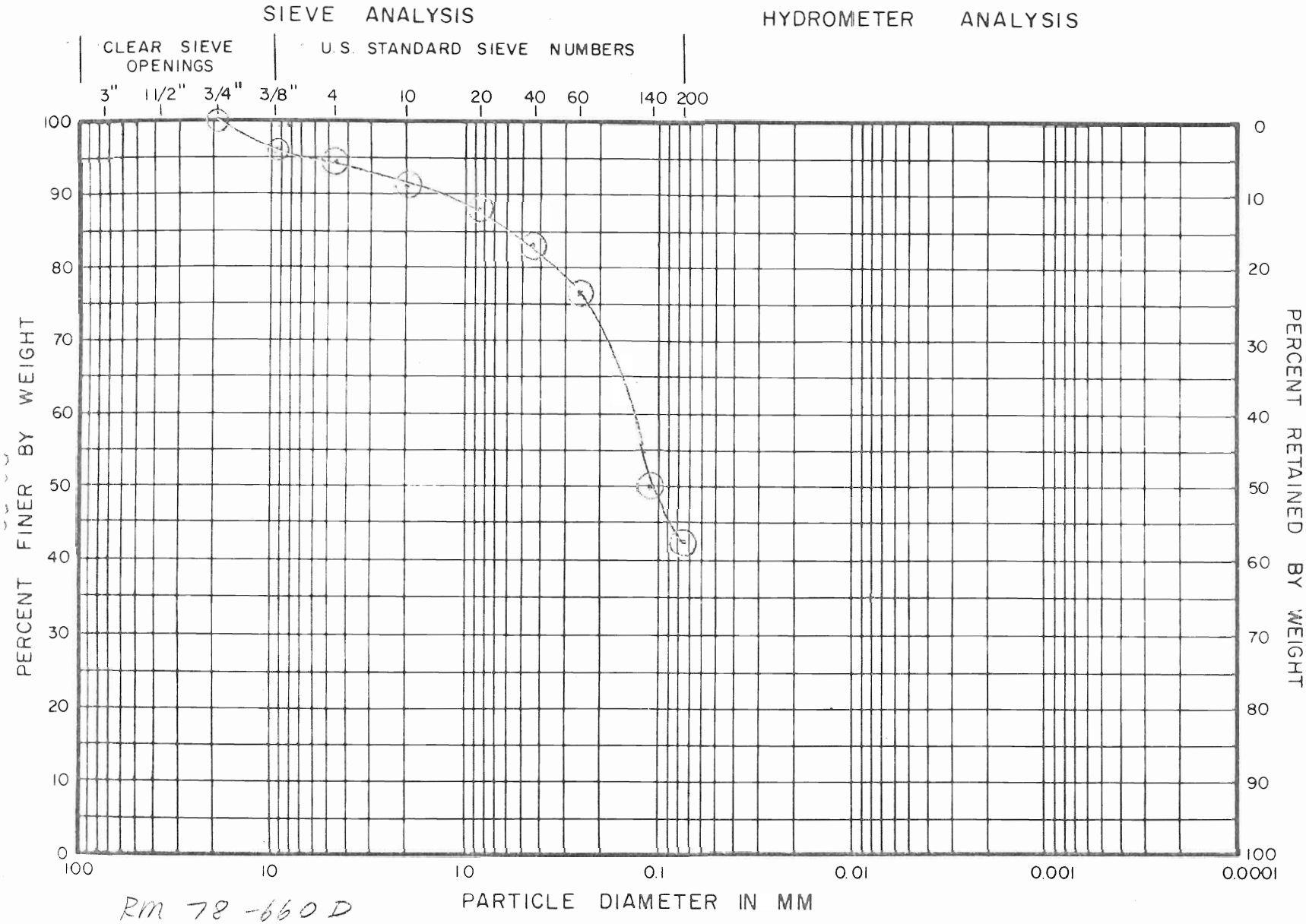


PM 78-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
		Sand, well graded, silty	SM-GM			
	5.0' Dep Cr Tod E					
C-C Bed						

CSL
6-11-85
VS 6-24-85



RM 78-660 D

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

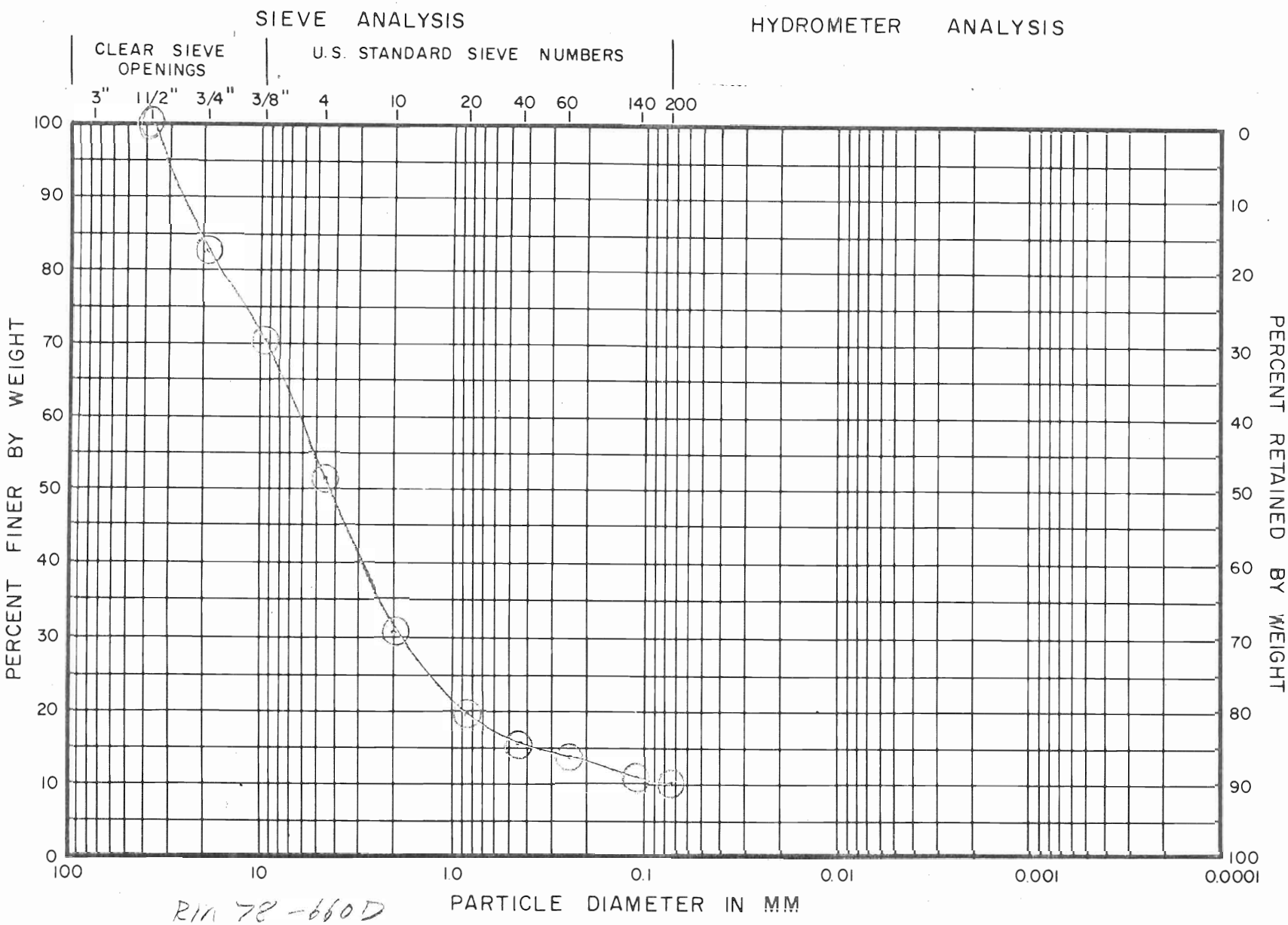
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	LL	PL	WC, %
A-A'	S. 0' Dark Cr	Sand, occ. gravel, v. silty				
Bank	Shed F					

CBL
6-11-80

JS 6-24-80

DEMPROLONIA



RIM 78-660D

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL

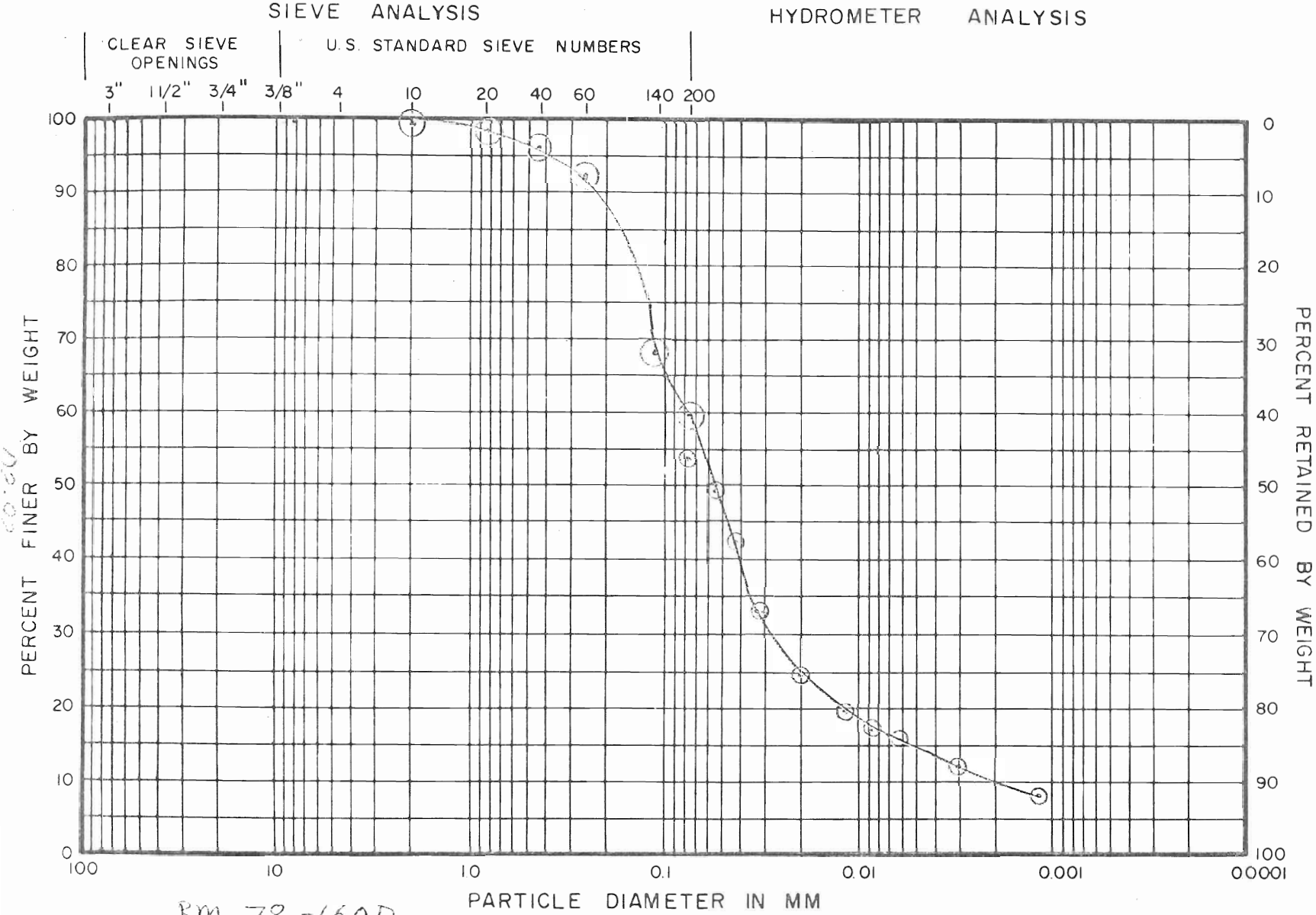
PALPOLONIA

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
	S, 0 [illegible] Cr	Gravel (cobbles) sandy, sl. silty	GM-SM			
M-H	Shed F					
Ecl						

CSL
5-27-83
JS 6-24-83

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



RM 78-660D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

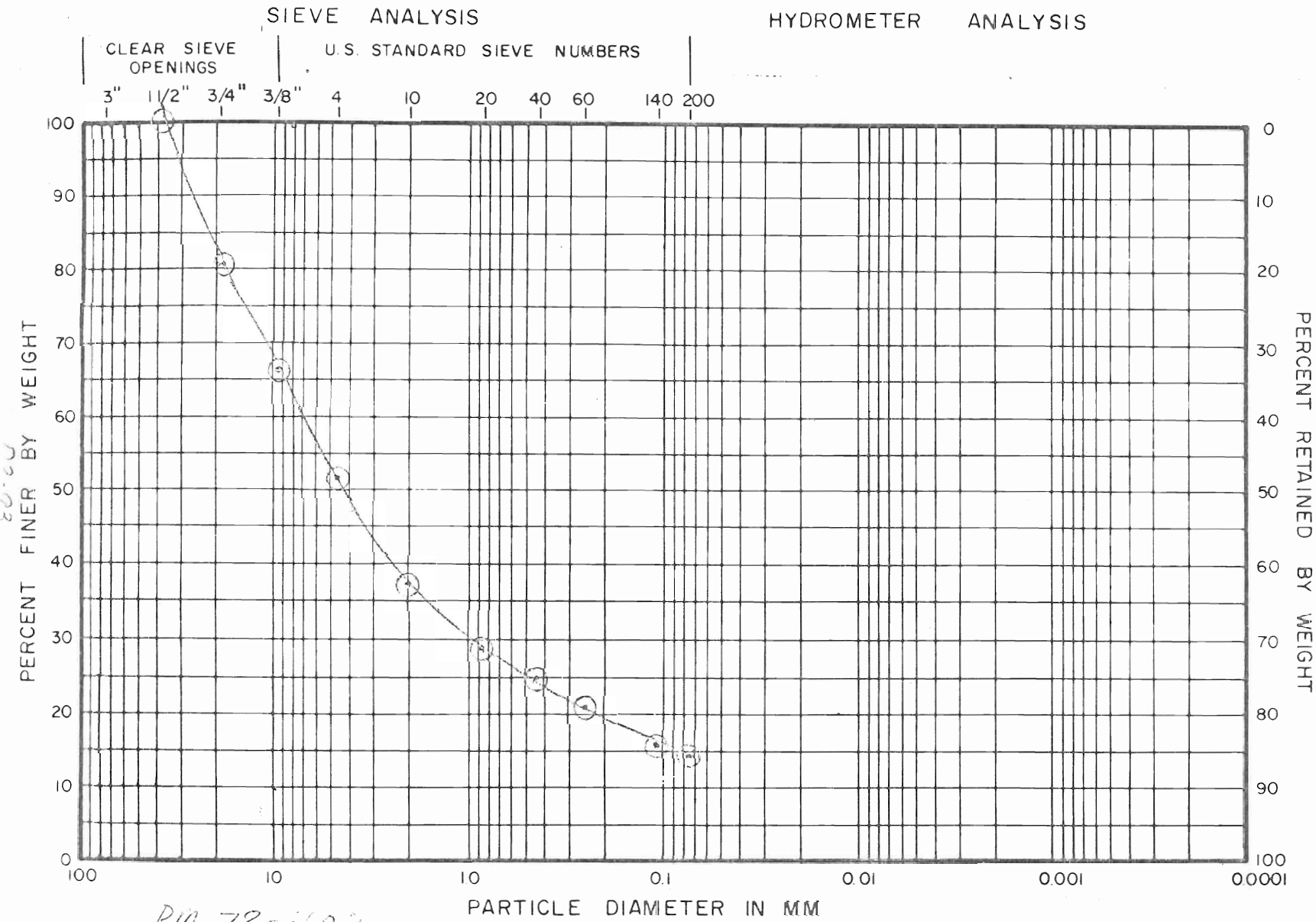
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
B-B'	S. O'Dell Cr	Silt, v. sandy-fine				
Bank	Shelx F					

CBL
6-11-80
JS 6-24-81

DRAFT

DAMPIDONIA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



RIN 78-0602

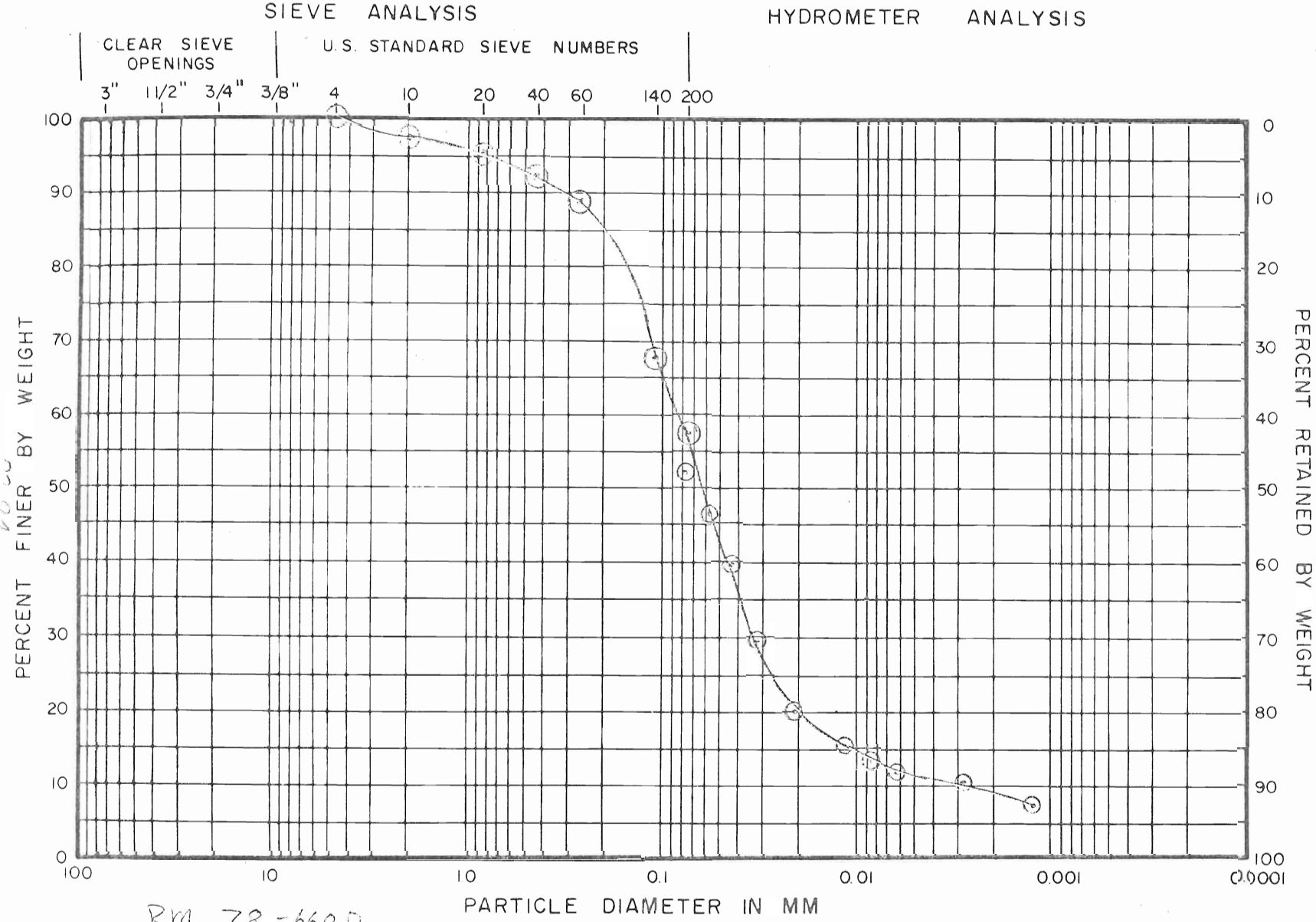
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC,%
		Gravel and sand, coarse to med,	GM (SM)			
B-B'	≤ 0'D-2 Cr	sl. silty				
Bed	Shed F					

CBL
6-11-80

DRAPPOLDNA

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



RM 78-660D

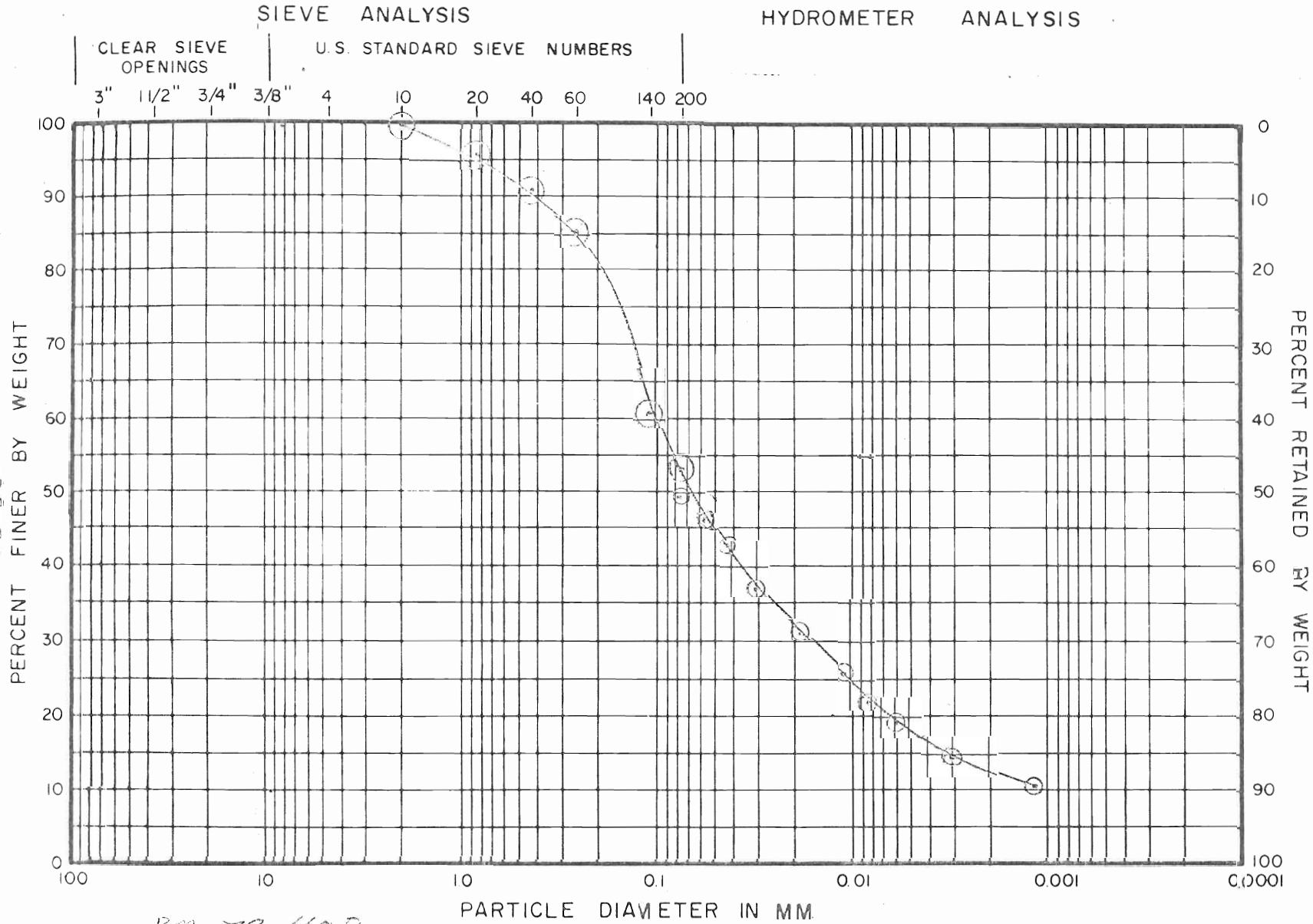
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
C-C	5.0-5.0 Cr	Silt, V. Sandy-Fine				
Bank	Stock					

CBL 5-11-80

JS 5-24-80

GRAIN SIZE ANALYSIS
COHESIVE MATERIAL



RM 78-660 D

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

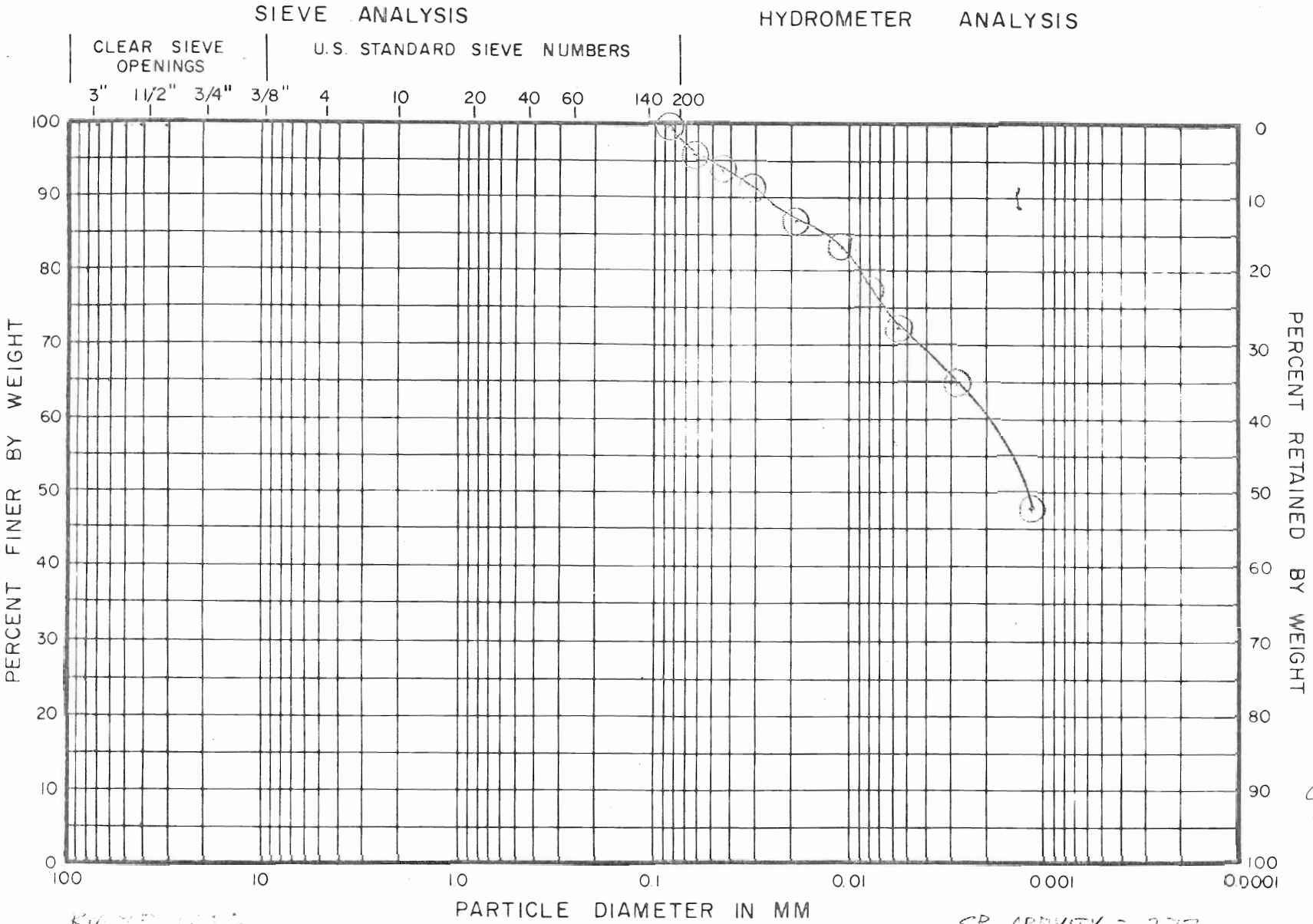
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	L.L.	P.L.	WC, %
C-C'	S. 0'-2' (Cr	SILT, v. sandy - fine				
Bor 2	Shd =					

CBL
6-11-79
JS 6-24-9

DRAFT

D'APPOLONIA

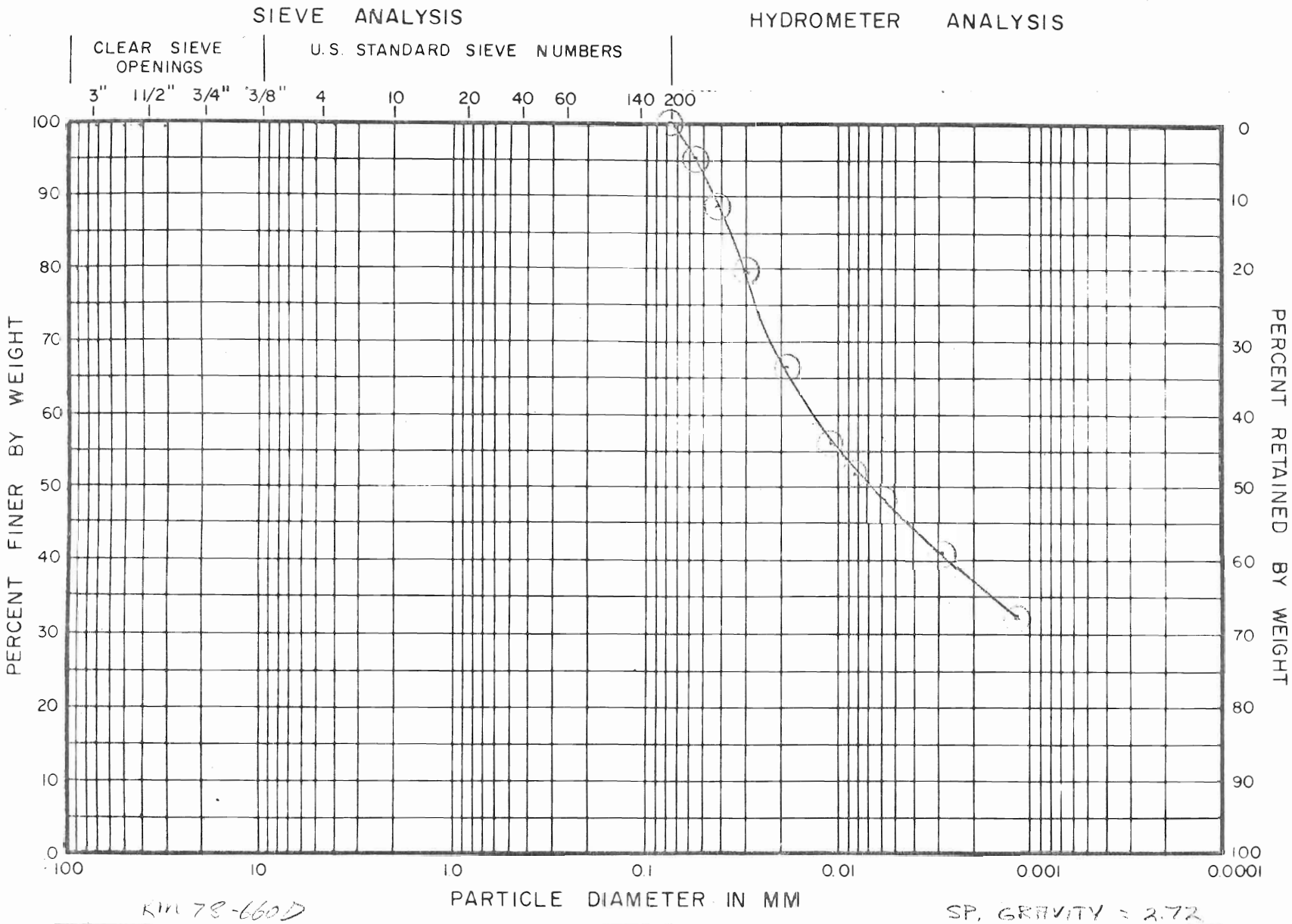
GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



SP. GRAVITY = 2.72

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
SP14-TP1	0-76'	Clay, silty,	CL			



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

CBL
12-29-77

RM 78-660D

SP. GRAVITY = 2.72

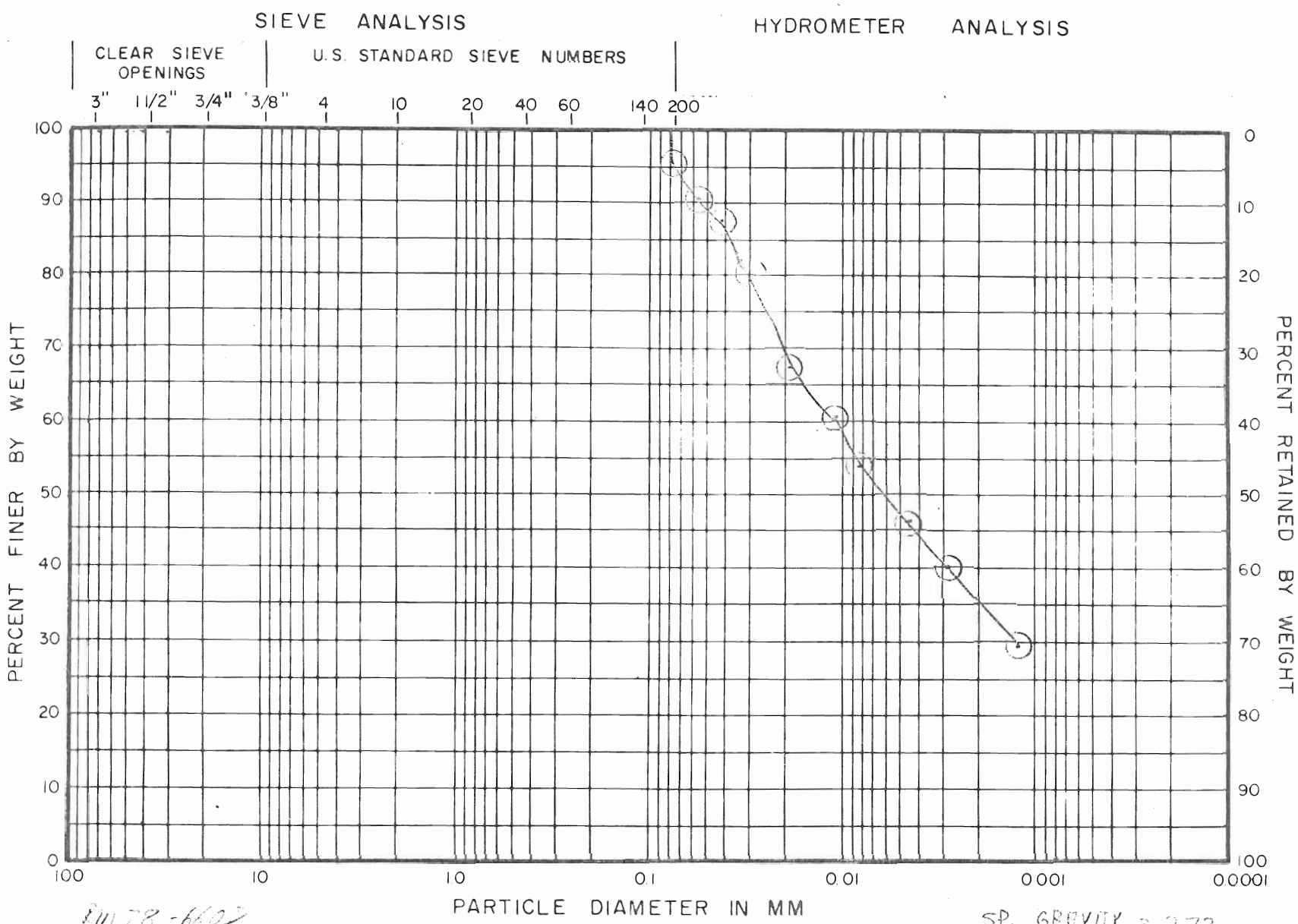
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
SP 16, Tr 2	11'-36"	Silt, clayey	ML-CL			

DAPIDONIA

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



Em 78-6602

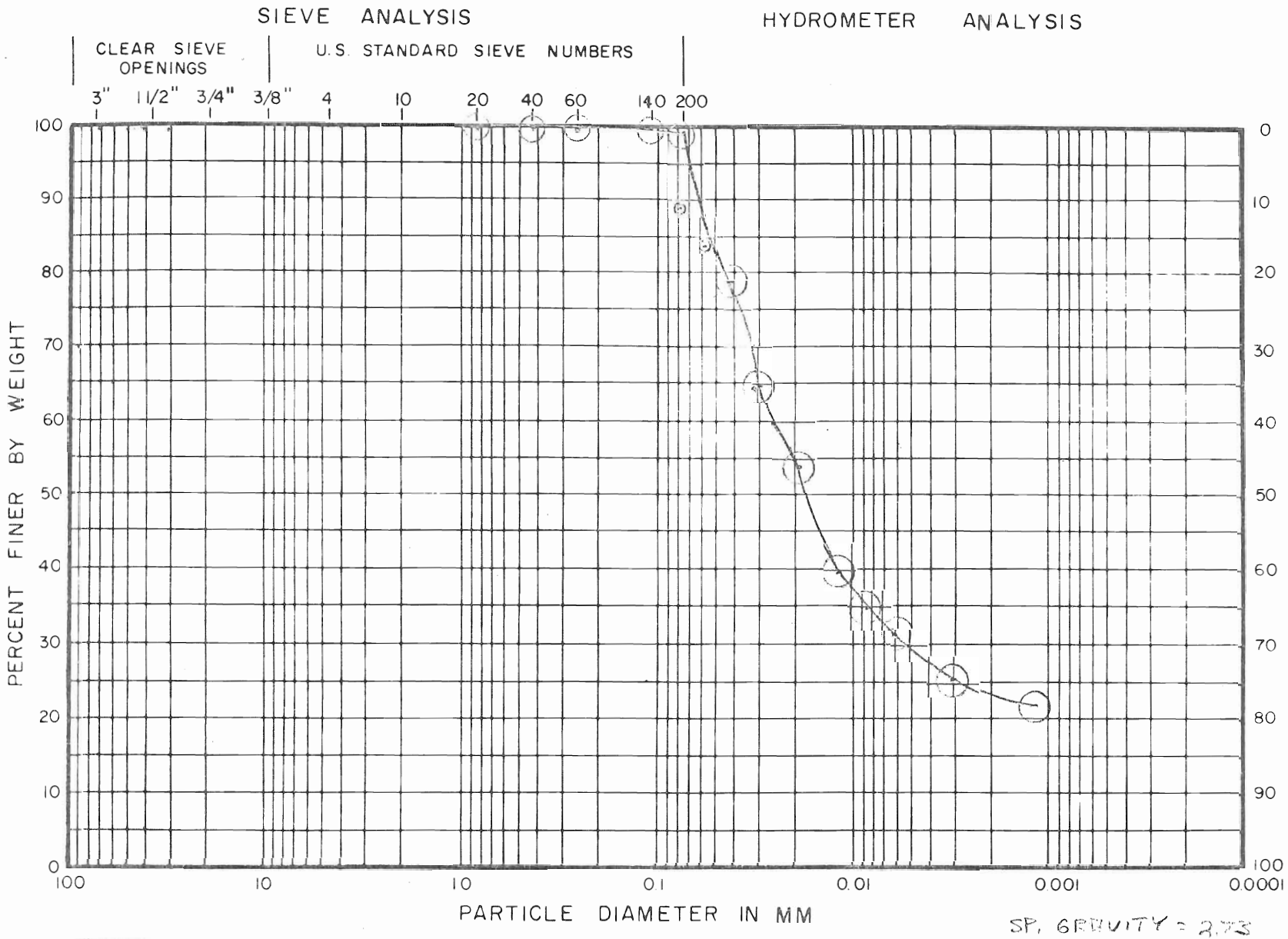
SP. GRAVITY = 2.72

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
SP 16			ML-CL			
TP 8	0-12'	Silt (clayey silt to), clay				
TP						

CBL - 12-2[illegible]

12.96



SP. GRAVITY = 2.73

CBL 12-21-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

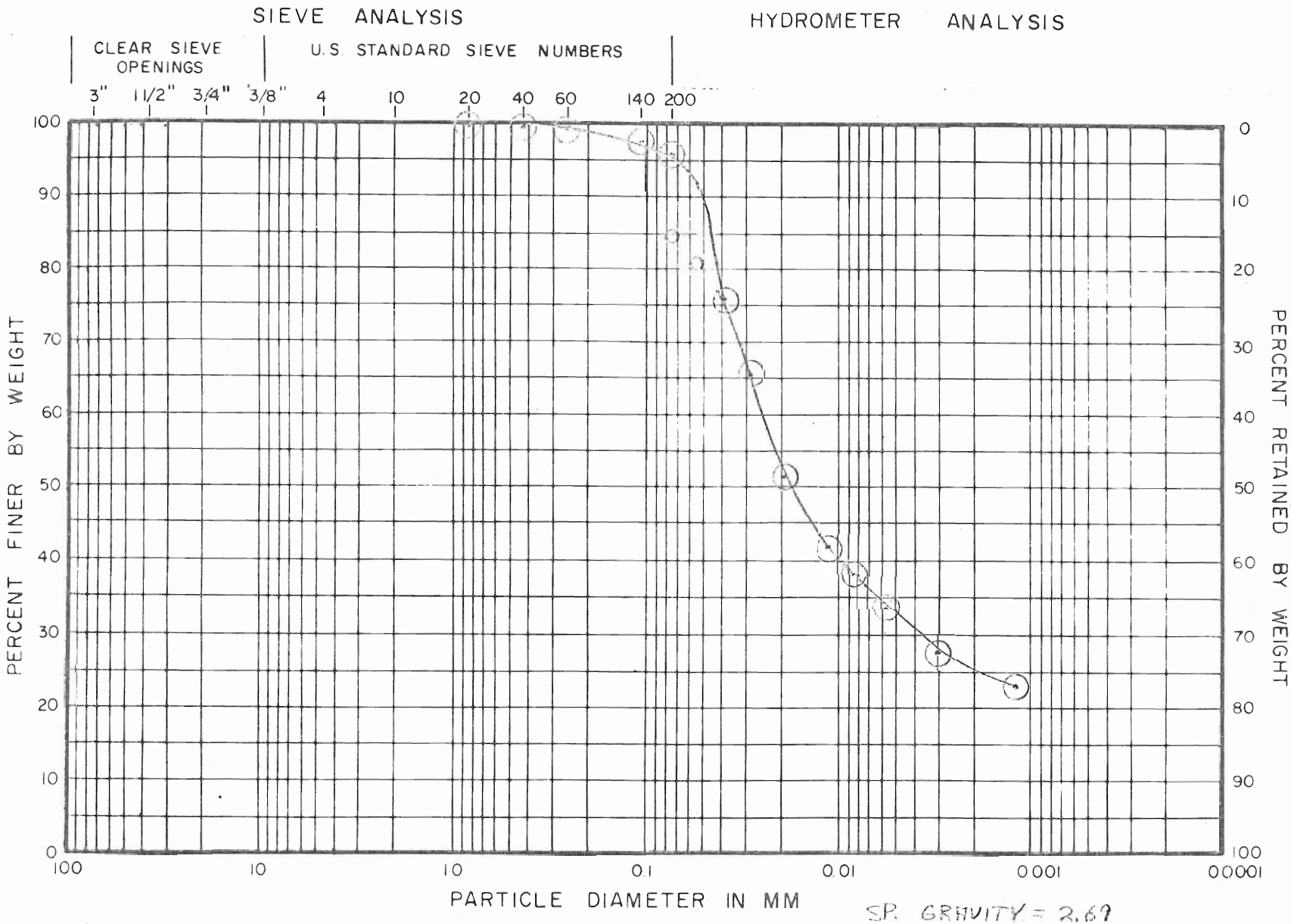
BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
TP 1						
	0-92"	Silt, clayey, sl. sandy, ...	ML-CL			
SP 21						

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

DAMPIDONLA

D'APPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

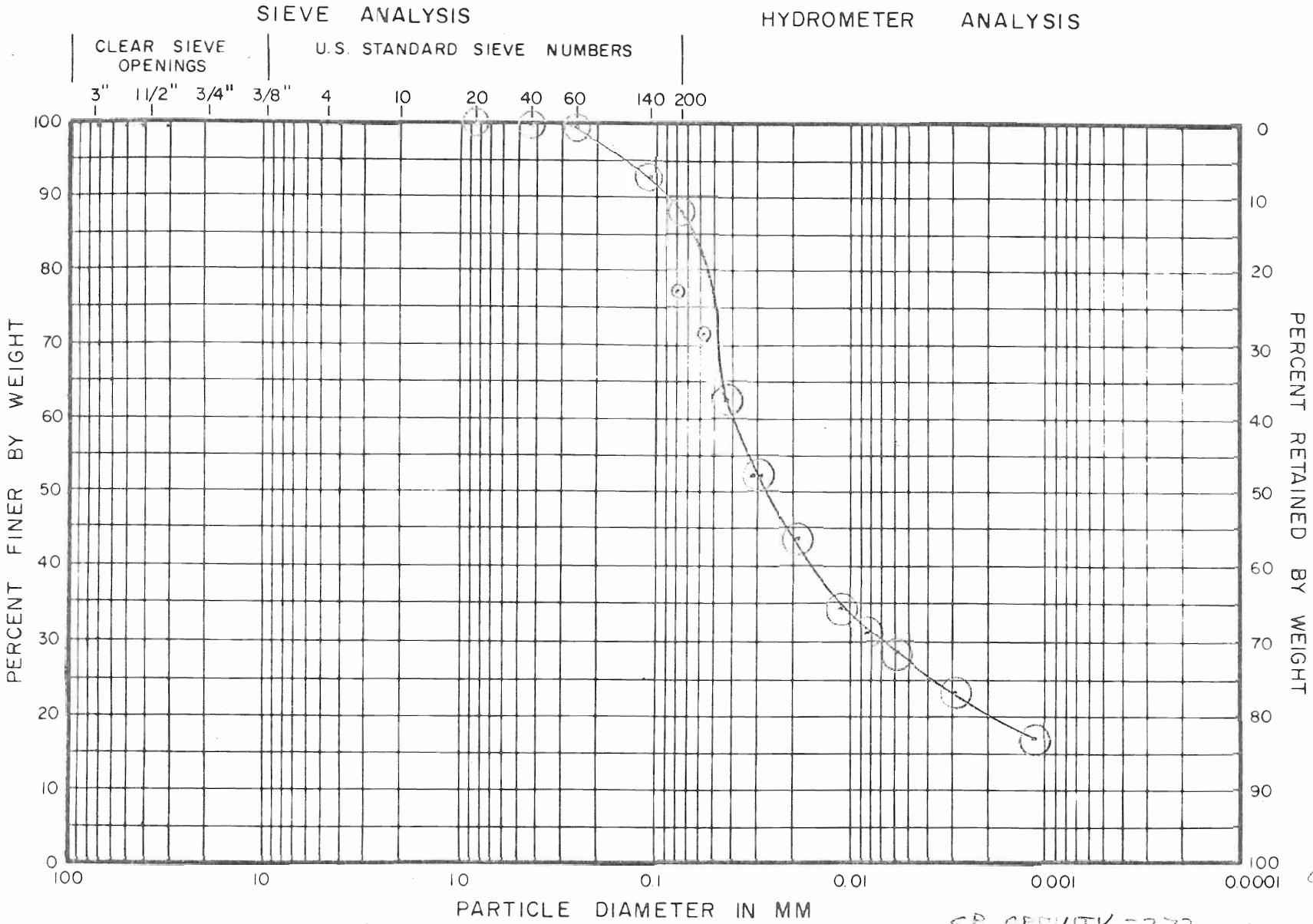


SP. GRAVITY = 2.69

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
TP 2	0-50'	Silt, clayey sl. sandy, tan	ML-CL			
SP #1						

CBL



SP. GRAVITY = 2.72

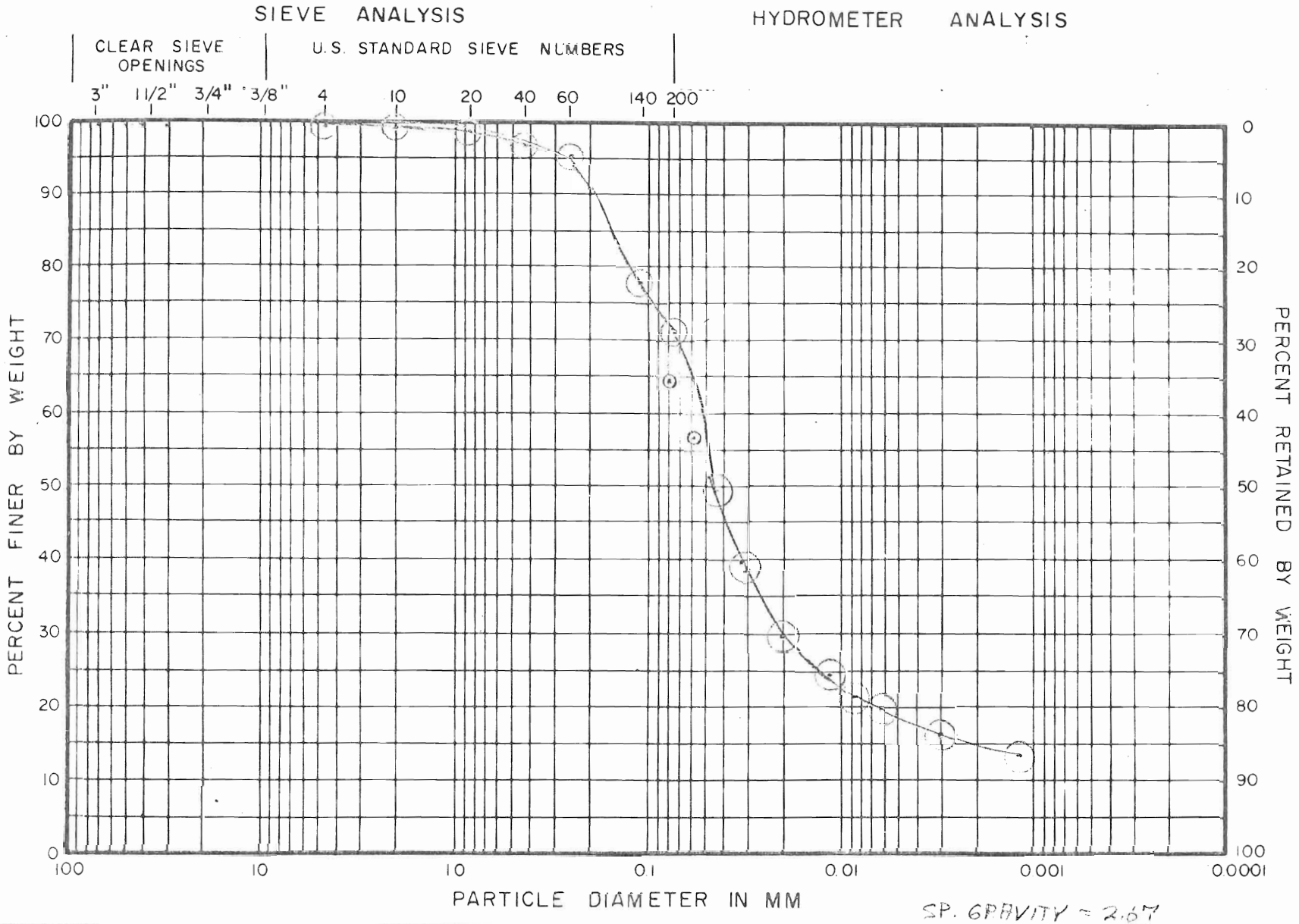
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC,%
TP 3						
	0-27"	Silt, tan, clayey, sandy	ML-CL			
SP 21						

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

DAPPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



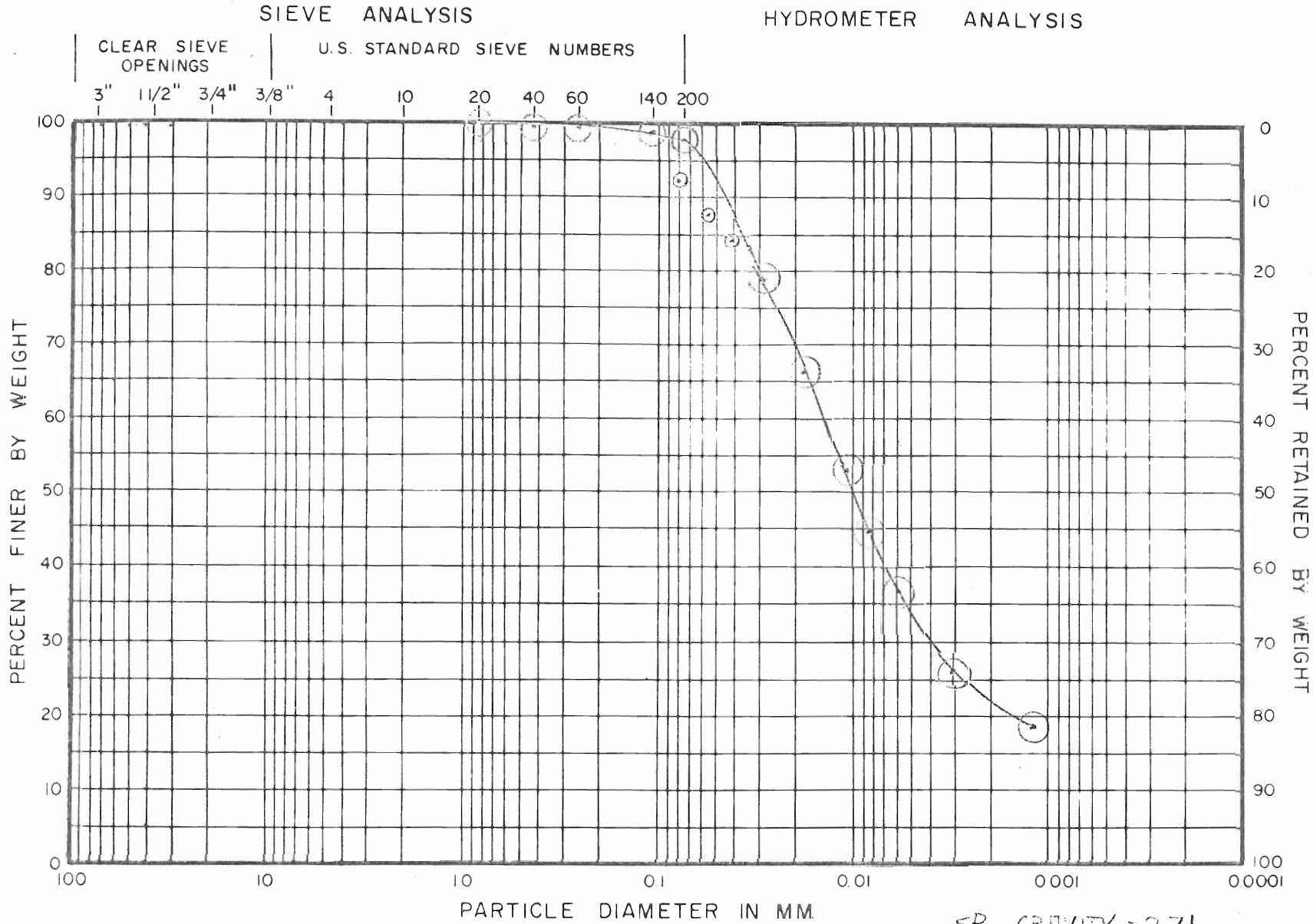
SP. GRAVITY = 2.67

CBL 12-24-79

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
TP 3						
	31" - 102"	Silt-sand, clayey, rain	ML-CL			
SP 21						

DAIPROLONIA



GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL

S.P. GRAVITY = 2.71

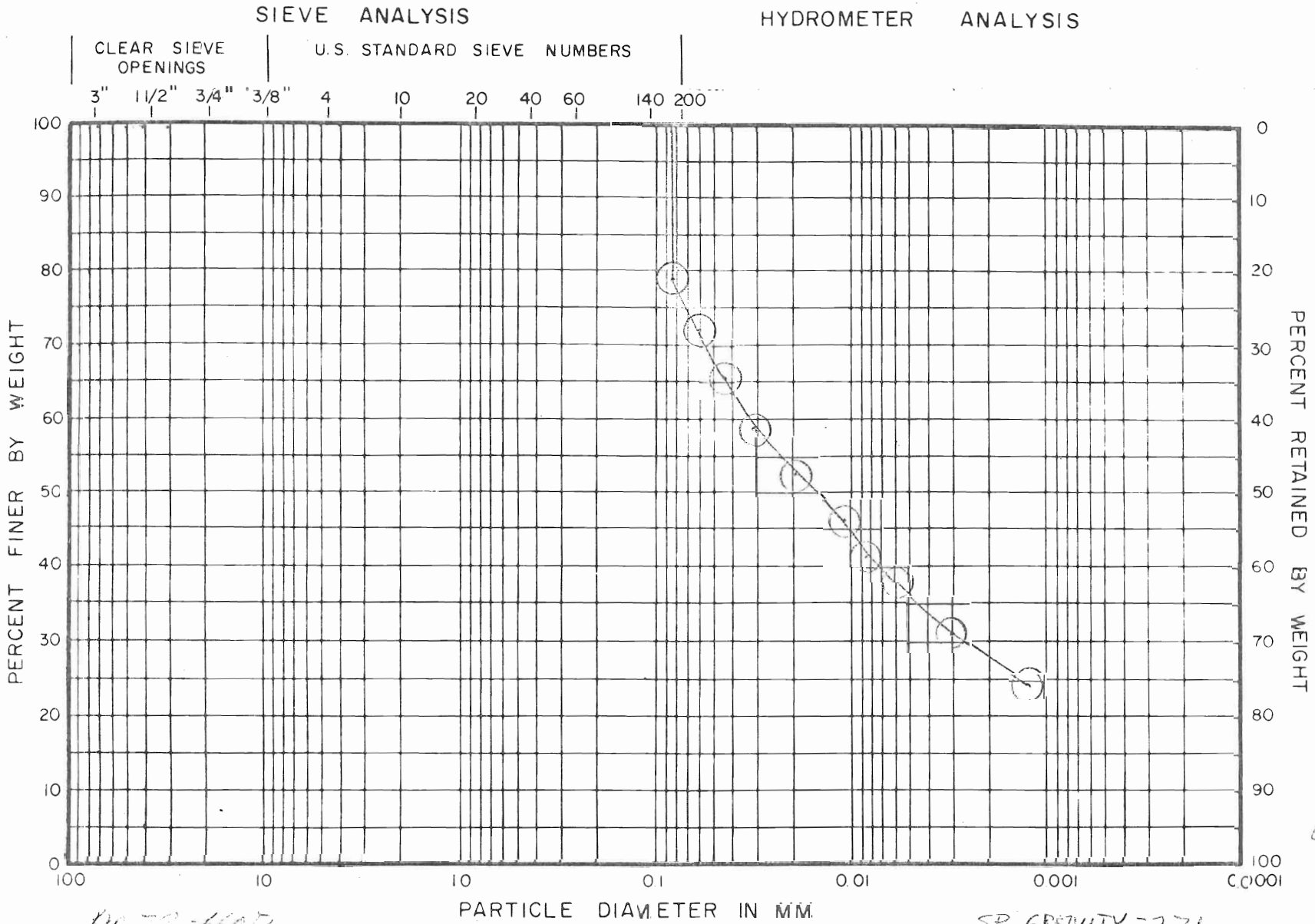
COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	W/C, %
TP 1						
	0-60"	Silt, tan, clayey, sl sandy	ML-CL			
SP 23						

CBL

DRIPPOLONIA

GRAIN SIZE ANALYSIS
COHESIONLESS MATERIAL



SP. GRAVITY = 2.71

COBBLES	GRAVEL		SAND			SILT AND CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	SILT FRACTION	CLAY FRACTION

BORING	SAMPLE, DEPTH	SOIL DESCRIPTION	USCS	D_{10}	C_u	WC, %
SP 26	31-36	Silt, clayey	ML-CL			
TP 3						

DAPPOLONIA

DAPPOLONIA

SHELBY TUBE LABORATORY RECORD

PROJECT NO. Kin 78-660 MLD
PROJECT NAME Monro
TESTED BY CBL DATE 10-22-79
CALCULATED BY CBL DATE 10-23-79
CHECKED BY SPB DATE 10-31-79

BORING NO.
SHELBY TUBE NO.
DEPTH PUSHED TO
GROUND SURFACE ELEVATION
TUBE ELEVATION TO
TUBE RECOVERY

SOIL PROFILE AND SAMPLING

DEPTH ( )	ELEV. ( )	SECTION NO.	SOIL PROFILE	SOIL DESCRIPTION AND REMARKS	TEST PERFORMED
				Hand driven sections of Shelby tube used in testing.	

NOTE: WHEN FULL RECOVERY IS NOT ACHIEVED, SOIL ELEVATION CAN NOT BE ACCURATELY DEFINED

INDICATE EACH CUT OF THE TUBE WITH AN ARROW ⟶
INDICATE EACH SOIL CUT (AFTER EXTRUDING) BY A BROKEN LINE------

WATER CONTENT

	TP2 SP18 @45	TP2 SP18 @45	TP2 SP16 @20	TP2 SP16 @20	TP1 SP21 @18	TP1 SP21 @18	TP1 SP23 @24	TP1 SP23 @24	TP1 SP14 @37	TP1 SP14 @37
SECTION NUMBER	10"	28	24"	48"	24"	60	48	48	24"	60"
TARE NUMBER	137	144	125	134	104	133	114	106	113	148
Wt. TARE + WS, gm	290.71	272.34	267.76	270.82	290.24	246.47	263.86	388.28	256.62	276.73
Wt. TARE + DS, gm	267.31	251.52	240.97	246.07	264.85	224.37	248.37	361.31	226.60	267.76
Wt. WATER, gm	23.6	22.4	26.8	24.8	25.4	22.1	15.5	27.7	20.1	26.97
Wt. TARE, gm	154.08	158.77	149.33	160.34	147.71	151.30	150.00	154.12	147.27	149.84
Wt. DS, gm	113.23	92.75	91.64	85.74	115.06	73.07	98.32	207.19	86.73	119.92
WATER CONTENT, %	20.8	24.2	29.4	28.9	22.1	30.2	15.8	13.4	23.2	22.5

NATURAL DENSITY

1	Wt. TARE + WS, gm	741.62	717.83	716.82	757.6	719.93	676.47	730.23		566.76	734.17
2	Wt. TARE, gm	214.92	212.53	207.91	209.73	213.40	210.97	214.31		217.17	207.00
	Wt. WS, gm	526.8	505.3	509.0	547.7	506.5	435.5	516.3		347.8	527.2
	CIRCUMFERENCE, cm	7.25	7.25	7.25	7.25	7.25	7.25	7.25		7.25	7.25
	LENGTH, in										
3	LENGTH, cm	6.55	6.30	6.40	6.20	6.40	5.50	6.50	3.55	4.50	6.60
4	AREA, 41.28 cm²										
	UNIT WET Wt., gm/cm³	1.75	1.94	1.93	1.95	1.78	1.92	1.92	2.02*	1.87	1.94
5	62.4										
	UNIT WET Wt., pcf	121.6	121.2	120.2	122.0	111.0	119.8	120.1	127.9	116.8	120.7
6	WATER CONTENT	20.8	24.2	29.4	28.9	22.1	30.2	15.8	13.4	23.2	22.5
7	CONSTANT 1										
	UNIT DRY Wt., pcf	100.6	97.6	92.9	94.3	90.9	91.9	103.5	112.8	94.8	98.5
	UNIT DRY Wt., gm/cm³										
8	SG (ASSUMED/MEASURED)										
9	CONSTANT 1										
	VOID RATIO										
	DEG. SATURATION, %										

*Trimmed to 2 cm

SUPPLEMENT D3

GULLY HEAD MAPS AND CROSS SECTIONS

		Page
Gully Head 1	- Map and Cross Section	D3-2
Gully Head 2	- Map and Cross Section	D3-3
Gully Head 3	- Map and Cross Section	D3-4
Gully Head 4	- Map and Cross Section	D3-5
Gully Head 5	- Map and Cross Section	D3-6
Gully Head 6	- Map and Cross Section	D3-7
Gully Head 7	- Map and Cross Section	D3-8
Gullies 2, 3, and 4	- Representative Cross Sections of Reaches Which Formed During the 1950 to 1976 Period.	D3-9

NOTES:

Locations of gully heads are shown on Map D-1.

Gully head plan maps are shown in Figures D-2 through D-8.

Map and cross sections numbers 1 through 7 surveyed and plotted by IntraSearch.