

SAMPLE # 30 KRENNM2 70.0 TO 71.0 FEET

CASE 4 10 FRACTIONS
 NUMBER OF FRACTIONS OF GRAIN-SIZE COMPOSITION CURVE -10,
 POROSITY $n = 0.35$

PERCENT (%)	GRAIN DIAMETER	D(mm)
0.00	0.0510	
3.00	0.0740	
14.27	0.1050	
26.00	0.1490	
61.40	0.2500	
68.60	0.4200	
71.31	0.8410	
81.20	2.0000	
95.10	4.7600	
99.99	9.5100	
100.00	12.7000	

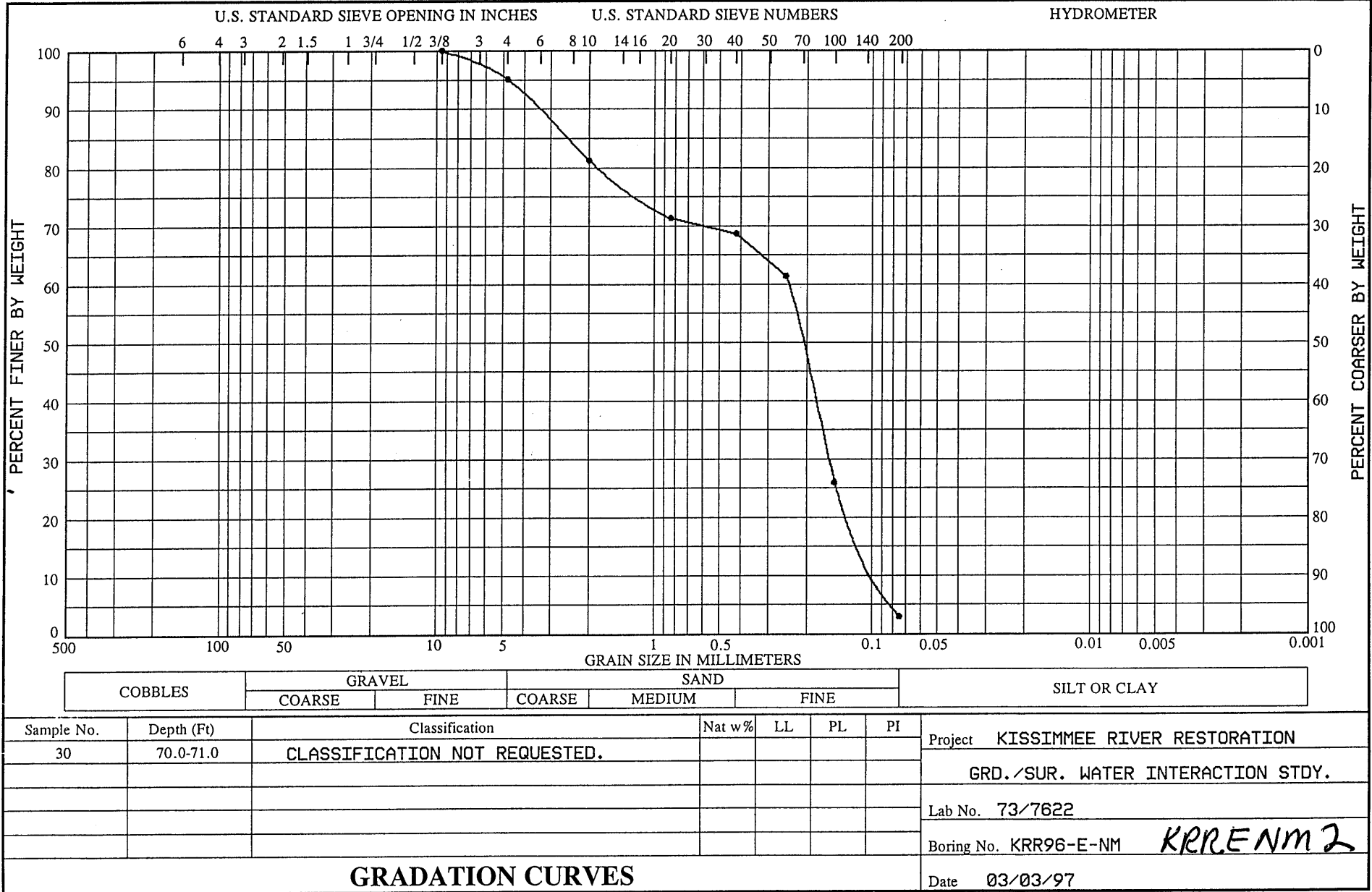
EFFECTIVE GRAIN DIAMETERS

D10 = 0.0920 (mm) , D17 = 0.1139 (mm) , D20 = .1246 (mm)
 DKRUE = 0.208 (mm) , DKOZ = 0.198 (mm) , DZUN= 0.201 (mm) , DZAM = 0.204 (mm)
 D60 = 0.2449 (mm) , ETA = 2.66

EMPIRICAL METHOD	HYDRAULIC CONDUCTIVITY (ft/d)
HAZEN	K = 23.518
SLICHTER	K = 6.544
TERZAGHI	K = 11.177
BEYER	K = 24.389
SAUERBREI	K = 12.045
KRUEGER	K = 44.056
KOZENY	K = 80.189
ZUNKER	K = 44.250
ZAMARINU	K = 50.295
USBR	K = 8.512

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060

WORK ORDER: 8172
 REQUISITION: W32CS570312365



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Depth (Ft)	Classification	Nat w%	LL	PL	PI	Project
30	70.0-71.0	CLASSIFICATION NOT REQUESTED.					KISSIMMEE RIVER RESTORATION
							GRD./SUR. WATER INTERACTION STDY.
							Lab No. 73/7622
							Boring No. KRR96-E-NM KRR ENM 2
GRADATION CURVES							Date 03/03/97



SAMPLE # 31 KRENNM2 71.0 to 71.5 FEET

CASE 5 12 FRACTIONS

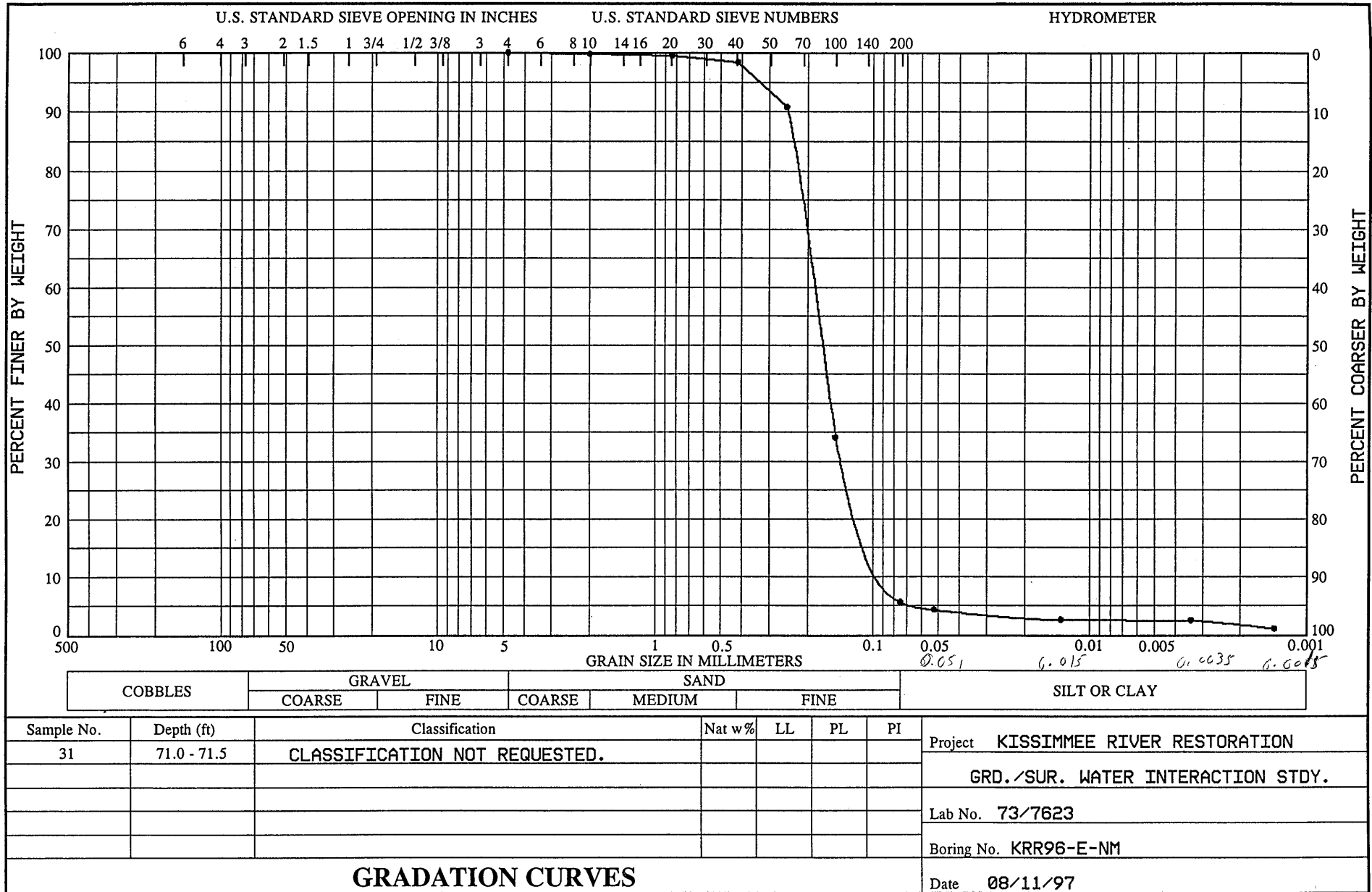
NUMBER OF FRACTIONS OF GRAIN-SIZE COMPOSITION CURVE -12,
 POROSITY $n = 0.35$

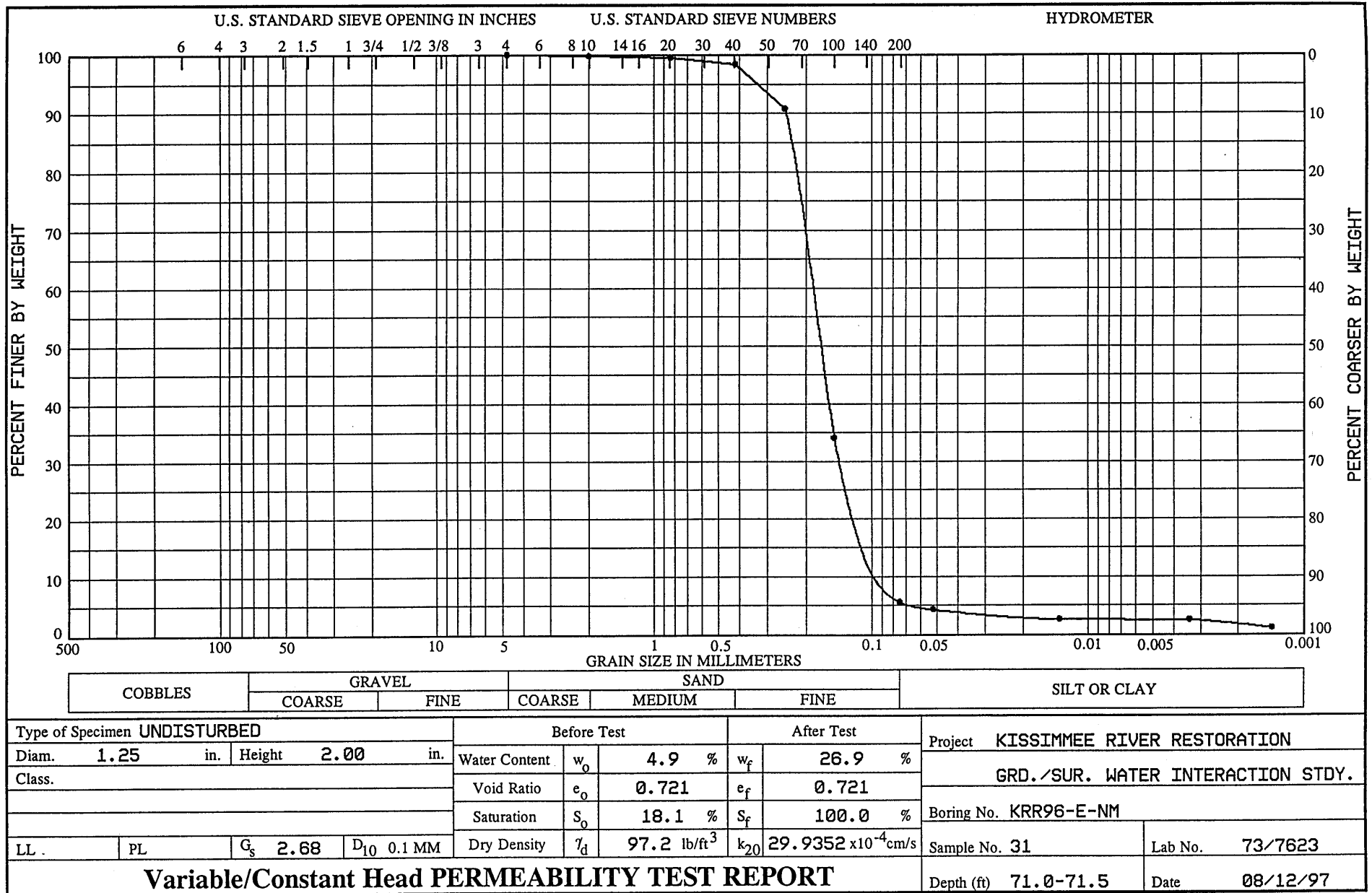
PERCENT (%)	GRAIN DIAMETER D(mm)
0.00	0.0010
1.00	0.0015
2.50	0.0035
3.00	0.0150
4.70	0.0510
5.70	0.0740
19.63	0.1050
34.11	0.1490
90.82	0.2500
98.41	0.4200
99.51	0.8410
99.81	2.0000
100.00	4.7600

EFFECTIVE GRAIN DIAMETERS

D10 = 0.0824 (mm) , D17 = 0.0983 (mm), D20 = .1059 (mm)
 DKRUE = 0.048 (mm), DKOZ = 0.043 (mm), DZUN= 0.044 (mm), DZAM = 0.046 (mm)
 D60 = 0.1887 (mm) , ETA = 2.29

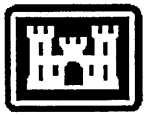
EMPIRICAL METHOD	HYDRAULIC CONDUCTIVITY (ft/d)
HAZEN	K = 18.899
SLICHTER	K = 5.259
TERZAGHI	K = 8.982
BEYER	K = 20.167
SAUERBREI	K = 8.967
KRUEGER	K = 2.314
KOZENY	K = 3.772
ZUNKER	K = 2.162
ZAMARINU	K = 2.553
USBR	K = 5.864





COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Type of Specimen UNDISTURBED				Before Test				After Test				Project KISSIMMEE RIVER RESTORATION		
Diam.	1.25	in.	Height	2.00	in.	Water Content	w ₀	4.9	%	w _f	26.9	%	GRD./SUR. WATER INTERACTION STDY.	
Class.						Void Ratio	e ₀	0.721	e _f	0.721	Boring No. KRR96-E-NM			
						Saturation	S ₀	18.1	%	S _f	100.0	%		
LL	PL	G _s	2.68	D ₁₀	0.1 MM	Dry Density	γ _d	97.2	lb/ft ³	k ₂₀	29.9352	x10 ⁻⁴ cm/s	Sample No. 31	Lab No. 73/7623
Variable/Constant Head PERMEABILITY TEST REPORT											Depth (ft)	71.0-71.5	Date	08/12/97



SAMPLE # 7 KRENNM 18.0 TO 19.5 FEET

CASE 7 - 14 FRACTIONS

NUMBER OF FRACTIONS OF GRAIN-SIZE COMPOSITION CURVE -14,
POROSITY $n = 0.35$

PERCENT (%)	GRAIN DIAMETER - D(mm)
0.00	0.0010
4.00	0.0015
5.00	0.0035
6.00	0.0150
6.00	0.0510
6.70	0.0740
18.22	0.1050
30.20	0.1490
83.90	0.2500
90.70	0.4200
93.50	0.8410
96.20	2.0000
98.40	4.7600
99.60	12.7000
100.00	19.1000

EFFECTIVE GRAIN DIAMETERS

D10 = 0.0818 (mm) , D17 = 0.1012 (mm) , D20 = .1106 (mm)
DKRUE = 0.024 (mm) , DKOZ = 0.022 (mm) , DZUN= 0.023 (mm) , DZAM = 0.023 (mm)
D60 = 0.1986 (mm) , ETA = 2.43

EMPIRICAL METHOD	HYDRAULIC CONDUTTIVITY
HAZEN	K = 18.608
SLICHTER	K = 5.178
TERZAGHI	K = 8.844
BEYER	K = 19.639
SAUERBREI	K = 9.503
KRUEGER	K = 0.568
KOZENY	K = 0.995
ZUNKER	K = 0.557
ZAMARINU	K = 0.641
USBR	K = 6.474

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