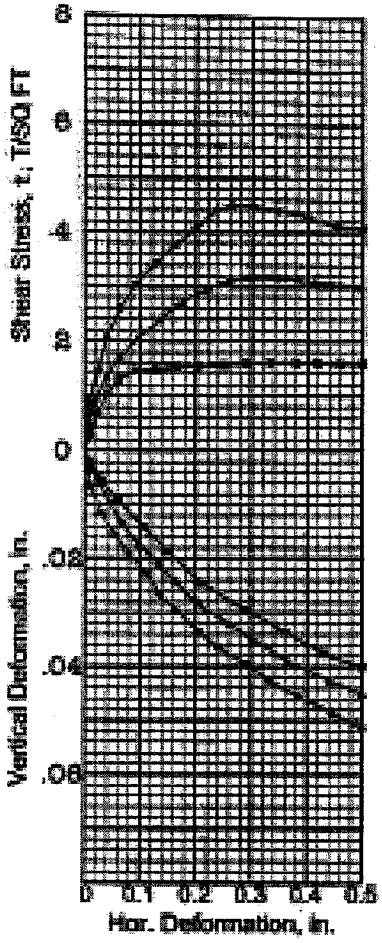

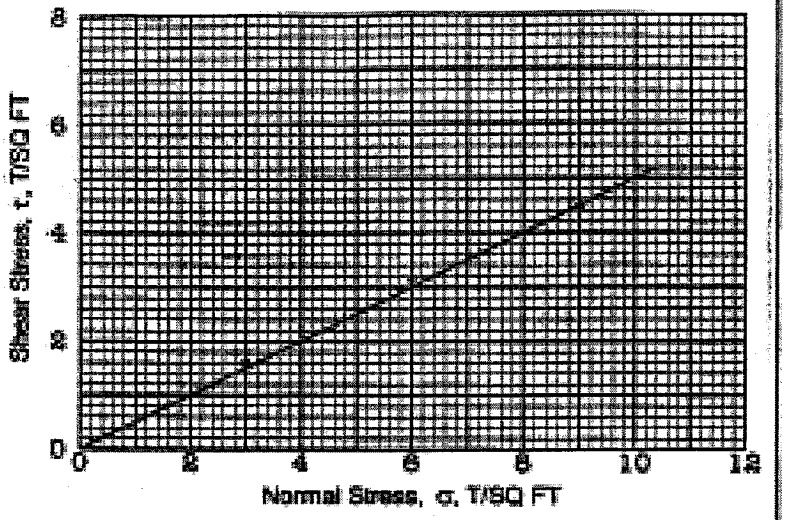

Shear Strength Parameters

$\phi' =$ 27.0 deg

$\tan\phi' =$ 0.610

$c' =$ 0.0 T/sq ft

☐ Controlled stress

☒ Controlled strain

Test No.						
Initial	Water content	w_o	24.4%	24.4%	24.4%	
	Void ratio	e_o	0.769	0.709	0.779	
	Saturation	S_o	87%	95%	88%	
	Dry density lb/cu ft	γ_d	97.2	100.4	96.5	
Void ratio after consolidation		e_c	0.694	0.615	0.610	
Time for 50 percent consolidation, min		t_{50}	16	24	23	
Final	Water content	w_f	25.5%	26.1%	26.4	
	Void ratio	e_f	0.688	0.464	0.424	
	Saturation	S_f	100	100	100	
Normal stress T/sq ft		σ	3.0	6.0	9.0	
Maximum shear stress, T/sq ft		τ_{max}	1.60	3.16	4.47	
Actual time to failure, min		t_f	600	600	600	
Rate of displ., in/min			0.0005	0.0005	0.0005	
Ultimate shear stress, T/sq ft		τ_{ult}	1.58	3.00	4.08	

Type of specimen Undisturbed	3.26 in. square	0.50 in. thick
Classification Brown and Gray Lean CLAY (CL)		
LL 34.1	PL 20.9	PI 13.2		G_s 2.75
Remarks	Project Yatesville Dam			
	Area			
	Boring No. UD-1A	Sample No. 4		
	Depth/Elev 579.5-577.0	Date DEC 1973		
	DIRECT SHEAR TEST REPORT			

Figure 4-10. Direct shear test report – effective stress envelope