TEST DATA SUMMARY

WDGL Report No. 9211

FEATURE FOUNDATION MATERIAL

WALLISVILLE RESERVOIR

BORING NO.	SAM. NO.	DEPTH OR ELEV. OF SAMPLE	LABORATORY CLASSIFICATION	MECHANICAL ANALYSIS: GRAVEL %	SAND %	FINES %	D_{10}	ATTERBERG LIMITS: LL	PL	SPECIFIC GRAVITY G	NAT. WATER CONT. %	NATURAL DRY DENSITY LBS/CU FT	COMPACTION DATA: OPT. WATER %	MAXIMUM DRY DENSITY LBS/CU FT	SHEAR DATA: INITIAL e	DRY DENSITY LBS/CU FT	w_i %	w_F %	S_F %	TYPE TEST	SPECIMEN SIZE INCHES	TEST	σ_m T/SQ FT	σ_f T/SQ FT	C T/SQ FT	ϕ DEGREES	PERMEABILITY: γ Lb/Ft³	K x 10⁴ FT/MIN.	CONSOLIDATION DATA: P_o T/SQ FT	P_c T/SQ FT	C_c	t_{50} *	REMARKS
3ST-113																																	
	M-8004	4.0-6.0	SC	0	87	13					29.3																						
				Gray clayey SAND; free water.																													
	M-8005	8.0-9.5	SC	0	71	29					28.2																98	0.037	D_{10}=	0.018			
				Gray clayey SAND; free water.																													
	M-8006	9.5-11.0	SC					27	13		29.2																						
				Gray clayey SAND.																													
	M-8007	17.0-19.0	SC					22	13		22.6																						
				Gray clayey SAND; shell fragments.																													
	M-8008	21.0-23.0	CH					77	20		33.4																						
				Dk. gray CLAY; some organic material.																													
	M-8009	26.0-28.0	CH					70	20	2.69	34.4	86			.993	84	36.6	34.8	99	TC-R	1.4 x 3.0		1.20	2.20									
				Dk. gray CLAY, stiff.																													
	M-8010	31.0-33.0	CL					50	17	2.67	23.3	103				104	22.5			UC	2.6 x 6.0		0.0	1.4							0.11		
				Olive and gray CLAY, stiff.																													
	M-8011	36.0-37.0	CL					45	16	2.69	25.3	99																			0.14		
				Olive and gray CLAY, very stiff.																													
	M-8012	37.0-38.0	CL								25.3	100				99	24.7			TC-Q	1.4 x 3.0		1.5	2.76									
				Gray and grayish-brown sandy CLAY, stiff.																													
	M-8013	46.0-48.0	SC	0	70	30					27.8																94	0.26	D_{10} estimated to be between 0.01 and 0.05				
				Grayish-brown clayey SAND; free water.																													
	M-8014	51.0-52.0	SP-SM	0	94	6					25.7																						
				Gray SAND.																													
	M-8015	56.0-57.5	SP-SM	3	91	6					20.9																						
				Gray SAND.																													
	M-8016	58.5-59.5	CL					40	12		19.2	111				111	19.0			UC	2.8 x 7.2		0.0	2.0									
				Olive and bluish-gray sandy CLAY, very stiff.																													

ENG FORM 1 MAR 58 2086 (PREVIOUS EDITIONS MAY BE USED) (EM 1110-2-1803) (TRANSLUCENT)

TC – Triaxial Compression
UC – Unconfined Compression
DS – Direct Shear
Q ~~UU~~ – Unconsolidate Undrained
S ~~CD~~ – Consolidated Drained
R ~~CU~~ – Consolidated Undrained
* Values at Pressure
T/SQ FT

TEST DATA SUMMARY

SWDGL Report No. 9211 — FEATURE FOUNDATION MATERIAL — WALLISVILLE RESERVOIR

BORING NO.	SAM. NO.	DEPTH OR ELEV. OF SAMPLE	LABORATORY CLASSIFICATION	MECHANICAL ANALYSIS: GRAVEL %	SAND %	FINES %	D_{10}	ATTERBERG LIMITS: LL	PL	SPECIFIC GRAVITY G	NAT. WATER CONT. %	NATURAL DRY DENSITY LBS/CU FT	COMPACTION DATA: OPT. WATER %	MAXIMUM DRY DENSITY LBS/CU FT	SHEAR DATA: INITIAL e	DRY DENSITY LBS/CU FT	W_i %	W_F %	S_i %	TYPE TEST	SPECIMEN SIZE INCHES	TEST	σ_m T/SQ FT	σ_I T/SQ FT	c T/SQ FT	ϕ DEGREES	PERMEABILITY: e	K FT/MIN.	CONSOLIDATION DATA: P_o T/SQ FT	P_c T/SQ FT	C_c	t_{50} *	REMARKS
3ST-113 (Cont'd)																																	
M-8017		63.0-63.5	CL					50	14		21.7	108				104	21.5			TC-Q	1.3 x 3.0		3.0	6.97									
				Bluish-gray CLAY, very stiff.																													
M-8017A		63.5-65.0	CL								15.2	114																					
				Lt. gray sandy CLAY, hard.																													
M-8018		68.0-70.0	SC	0	62	38					20.6																						
				Lt. gray clayey SAND.																													
3ST-114																																	
M-8019		4.0-5.0	SP-SM	0	92	8					22.5																						
				Gray SAND.																													
M-8020		12.0-13.0	CL					32	11		33.8	86				86	35.0			UC	2.5 x 4.8		0.0	0.1									
				Gray CLAY; 3/8" sandy seams throughout.																													
M-8021		16.0-17.0	SC	0	78	22					20.9	108																					
				Gray clayey SAND, firm; few shells and shell fragments.																													
M-8022		20.0-21.0	CL					31	11	2.71	21.7	101			.811	94	28.9	23.0	96	TC-R	1.4X3.0		1.00	2.10									
				Gray sandy CLAY, soft; shell fragments.																													
M-8023		28.0-29.0	CH					81	22		42.1	80				80	41.8			UC	2.5 x 4.8		0.0	0.5									
				Gray CLAY, medium consistency.																													
M-8024		30.0-31.0	CH					71	20	2.72	34.0	89			.865	91	31.6	31.6	99	TC-R	1.4 x 3.0		1.55	2.97									
				Gray and olive CLAY, stiff.																													
M-8025		35.0-36.0	CL					47	14		25.4	99																					
				Gray and olive CLAY, stiff.																													
M-8026		40.0-41.0	CL					48	17	2.68	23.6	100																			0.08		
				Olive and gray sandy CLAY, stiff; 1/2" layer of gray clay (CH).																													

ENG FORM 1 MAR 58 2086 (PREVIOUS EDITIONS MAY BE USED) (EM 1110-2-1803) (TRANSLUCENT)

TC – Triaxial Compression; UC – Unconfined Compression; DS – Direct Shear; Q ~~UU~~ – Unconsolidate Undrained; S ~~CD~~ – Consolidated Drained; R ~~CU~~ – Consolidated Undrained; * Values at Pressure; T/SQ FT

TEST DATA SUMMARY

SWDGL Report No. 9211

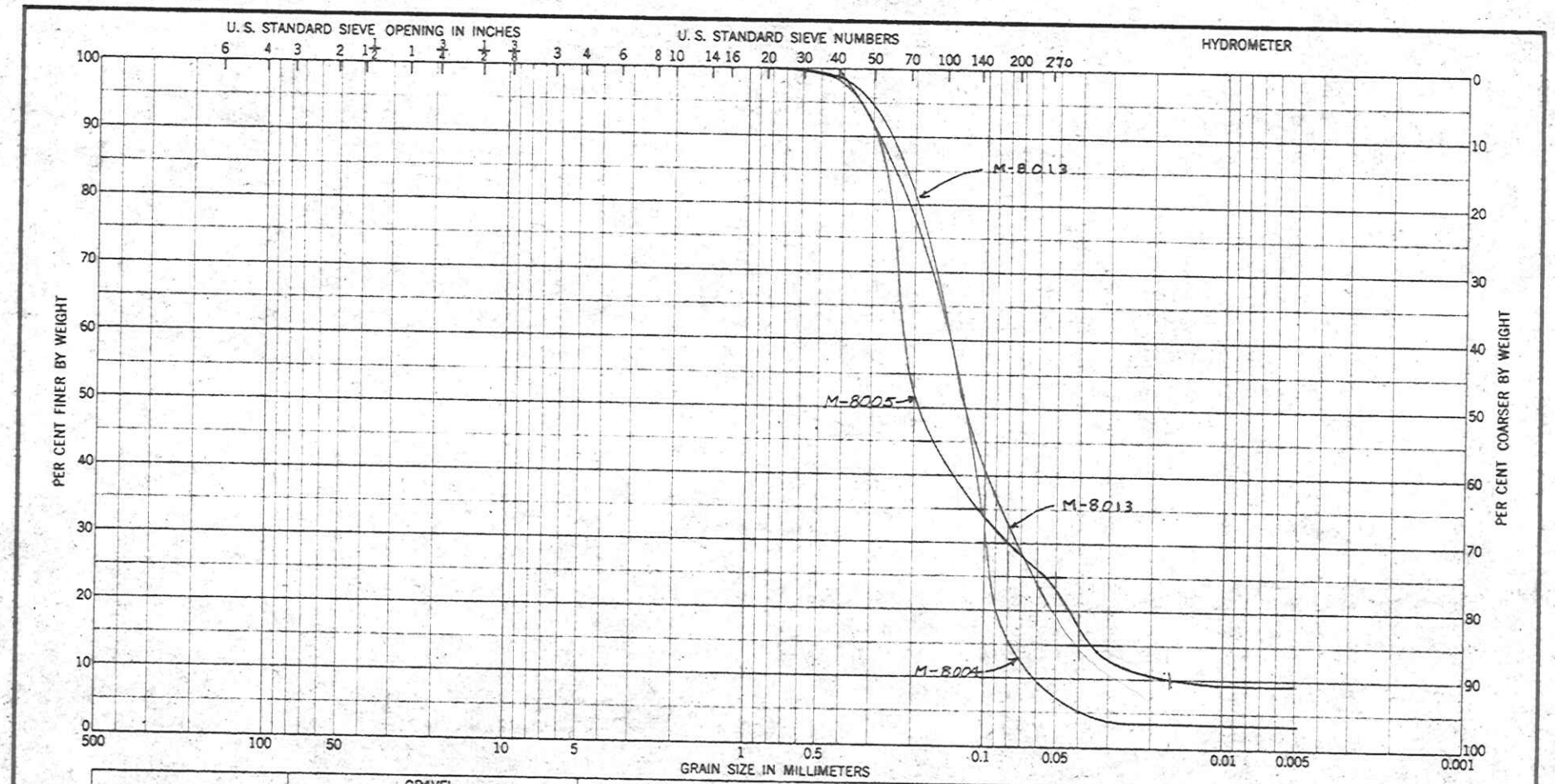
FEATURE FOUNDATION MATERIAL

WALLISVILLE RESERVOIR

BORING NO.	SAM. NO.	DEPTH OR ELEV. OF SAMPLE	LABORATORY CLASSIFICATION	MECHANICAL ANALYSIS: GRAVEL %	SAND %	FINES %	D_{10}	ATTERBERG LIMITS: LL	PL	SPECIFIC GRAVITY G	NAT. WATER CONT. %	NATURAL DRY DENSITY LBS/CU FT	COMPACTION DATA: OPT. WATER %	MAXIMUM DRY DENSITY LBS/CU FT	SHEAR DATA: INITIAL e	DRY DENSITY LBS/CU FT	W_i %	W_F %	S_i %	TYPE TEST	SPECIMEN SIZE INCHES	TEST	σ_m T/SQ FT	σ_f T/SQ FT	c T/SQ FT	ϕ DEGREES	PERMEABILITY: γ Lbs/Ft³	K x 10⁴ FT/MIN.	CONSOLIDATION DATA: P_o T/SQ FT	P_c T/SQ FT	C_c	t_{50}*	REMARKS
3ST-115 (Cont'd)																																		
M-8038		40.0-42.0	SM					NP	NP		20.6	112				113	17.1			TC-Q	1.4 x 3.0		2.0	10.91									
				Olive silty SAND, firm; ¼" clayey seams.																														
M-8039		45.0-47.0	SC-SM					22	15	2.71	23.1	104			.619	104	22.1	20.3	97	TC-R	1.4 x 3.0		2.30	9.19									
				Olive and gray clayey SAND, firm																														
M-8040		51.0-53.0	SM-SP	0	88	12					20.6																102	0.65	D_{10} = 0.06				
				Gray silty SAND.																														
M-8041		56.0-58.0	SC	20	67	13					22.1																							
				Gray clayey SAND; free water.																														
M-8042		61.0-63.0	CL	1	32	67		24	14		23.8																							
				Lt. gray sandy CLAY																														
M-8043		68.0-69.5	SC	0	69	31					26.8																							
				Gray clayey SAND; free water.																														
3ST-117																																		
M-8044		6.0-7.0	SC	0	71	29					19.6																							
				Dk. gray clayey SAND.																														
M-8045		10.0-12.0	SC	0	72	28					20.5																							
				Dk. gray clayey SAND.																														
M-8046		15.0-17.0	CL					49	11		38.5																							
				Gray sandy CLAY; few shells.																														

ENG FORM 1 MAR 58 2086 (PREVIOUS EDITIONS MAY BE USED) (EM 1110-2-1803) (TRANSLUCENT)

TC – Triaxial Compression
UC – Unconfined Compression
DS – Direct Shear
Q ~~UU~~ – Unconsolidate Undrained
S ~~CD~~ – Consolidated Drained
R ~~CU~~ – Consolidated Undrained
* Values at Pressure
T/SQ FT



Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI
M-8004	4.0 - 6.0	clayey SAND (SC)	29.3			
M-8005	8.0 - 9.5	clayey SAND (SC)	28.2			
M-8013	46.0 - 48.0	clayey SAND (SC)	27.8			

Project Wallisville Reservoir

Area FOUNDATION MATERIAL

Boring No. 35T-113

Date DEC 64

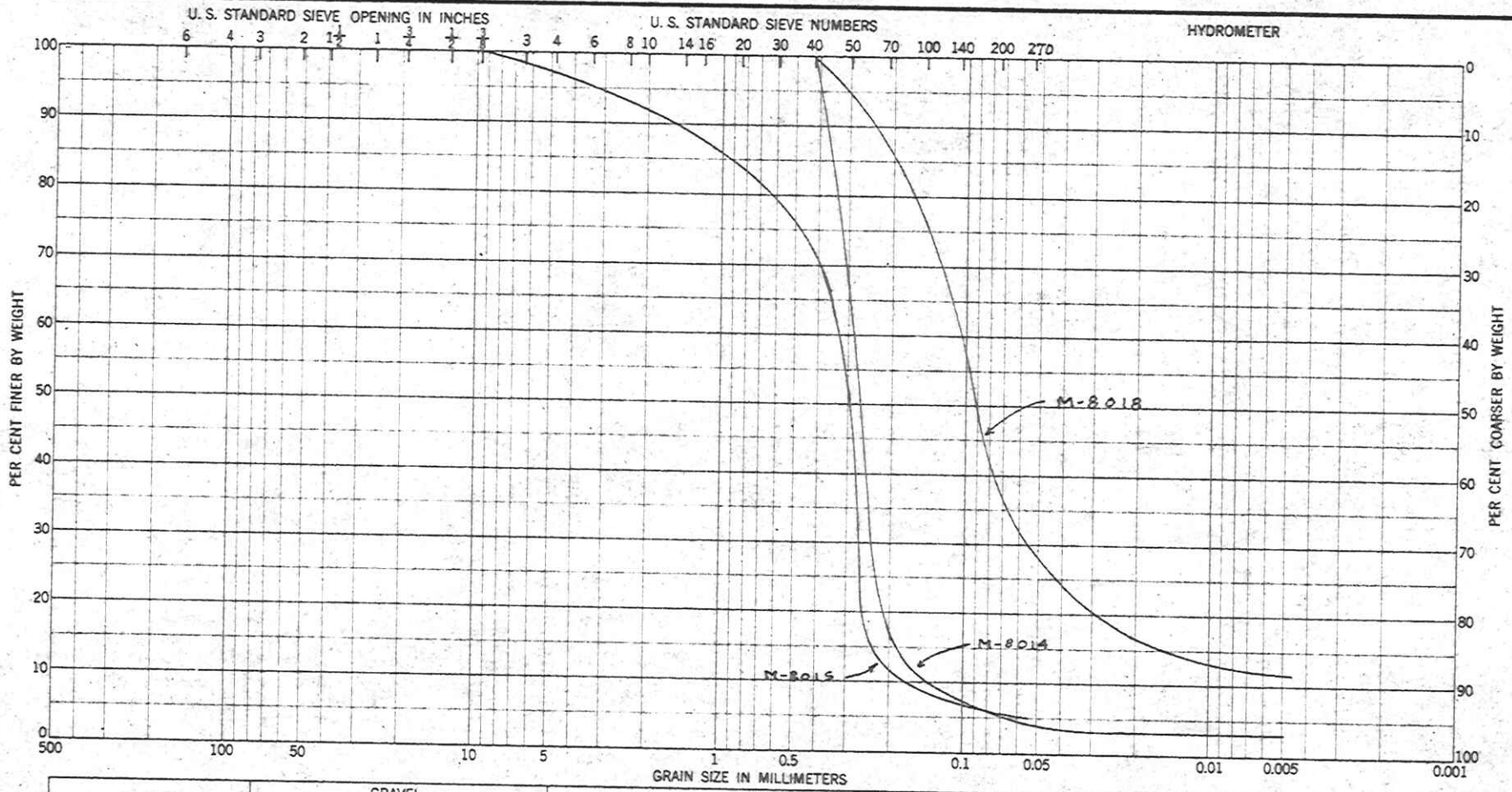
GRADATION CURVES

ENG FORM 1 MAY 63 2087 REPLACES WES FORM NO. 1241, SEP 1962, WHICH IS OBSOLETE. (TRANSLUCENT)

C 0436

PLATE NO. 30

WES Report No. 9211



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI
M-8014	51.0-52.0	SAND (SP-SM)	25.7			
M-8015	56.0-57.5	SAND (SP-SM)	20.9			
M-8018	68.0-70.0	SAND (SC)	20.6			

Project Wallisville Reservoir

Area FOUNDATION MATERIAL

Boring No. 35T-113

Date DEC 64

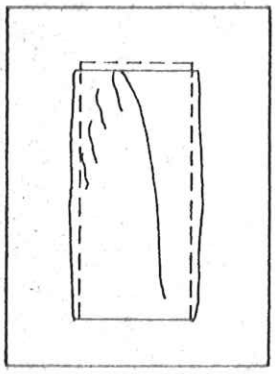
GRADATION CURVES

PLATE NO. 9

SWDGL Report No. 9211

ENG FORM 1 MAY 63 2087 REPLACES WES FORM NO. 1241, SEP 1962, WHICH IS OBSOLETE. (TRANSLUCENT)

C 3436

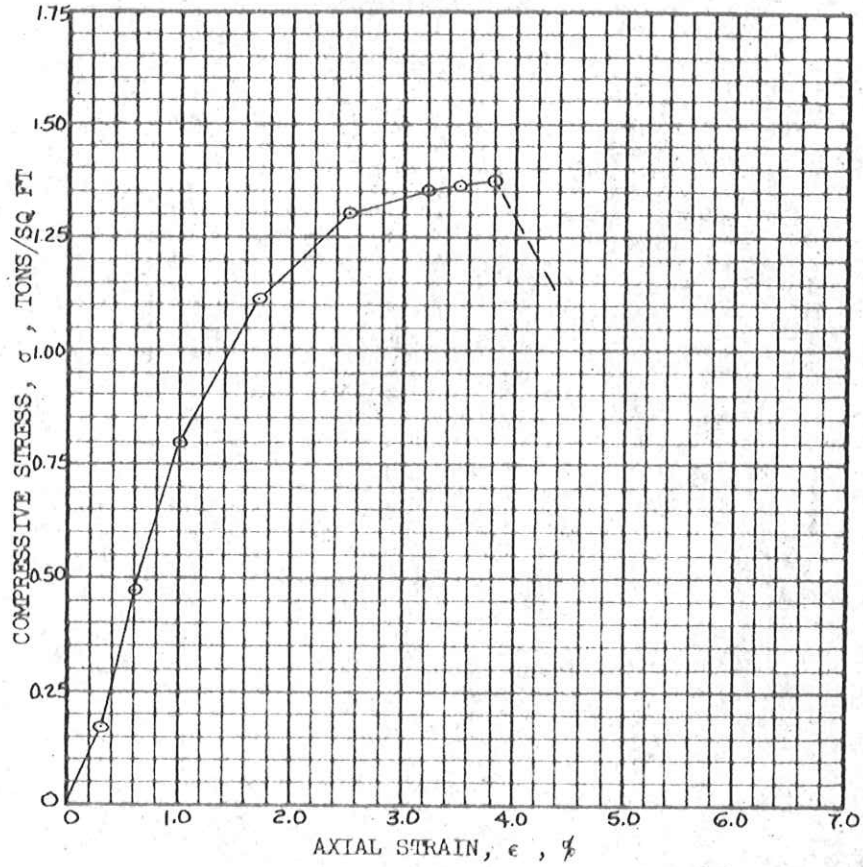


Sketch of specimen after failure

TEST TYPE
(Check one)

☐ Controlled-stress

☑ Controlled-strain
0.02 in/min.



Type of specimen	☑ Undisturbed ☐ Remolded		Test No.	Test No.	Test No.	Test No.
Initial	Water content	w_o	22.5 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density, lb/cu ft	γ_d	104			
Time to failure, min		t_f	14			
Unconfined compressive strength, tons/sq ft		q_u	1.4			
Undrained shear strength, tons/sq ft		s_u	0.7			
Sensitivity ratio		S_t				

Classification CLAY (CL)

LL 50 | PL 17 | PI 33 | G_s

Specimen Diam 2.6 cm in. | Specimen Height 6.0 cm in.

Remarks

Project Wallisville Reservoir

Area FOUNDATION MATERIAL

Boring No. 35T-113 Sample No. M-8010

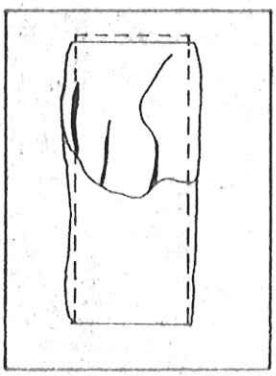
Depth, ~~Et~~ 31.0-33.0 Date DEC 64

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 MAY 63 3659 (TRANSLUCENT)

C 8927 PLATE NO. 21

PLATE XI-2

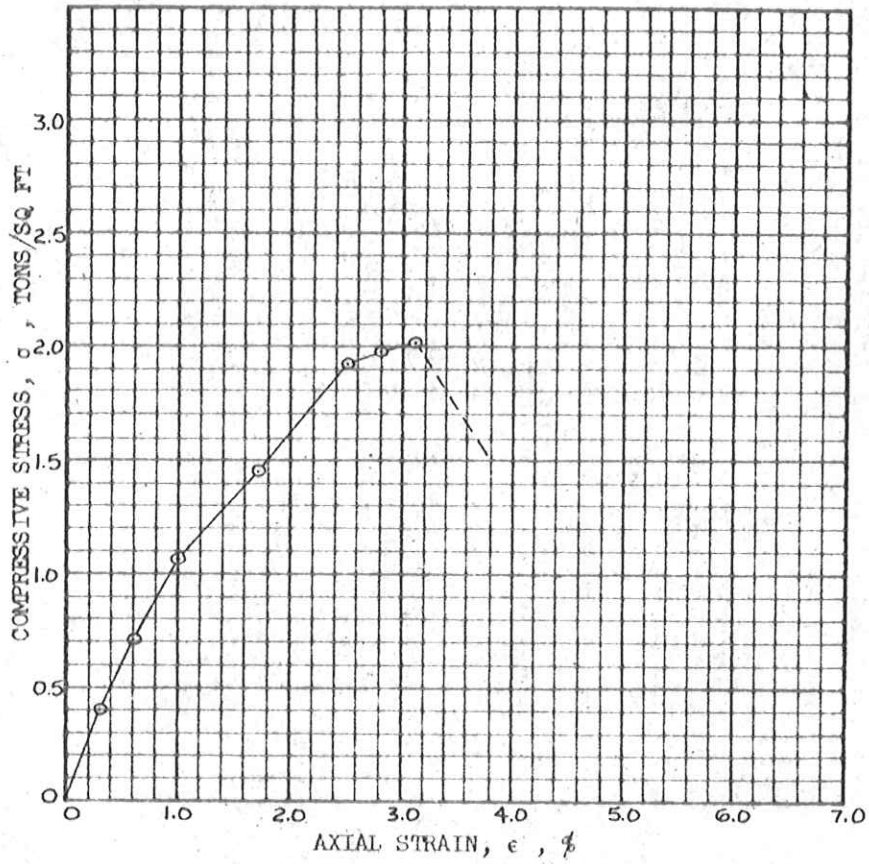


Sketch of specimen after failure

TEST TYPE
(Check one)

☐ Controlled-stress

☑ Controlled-strain
0.02 in/min.



Type of specimen ☑ Undisturbed ☐ Remolded		Test No.	Test No.	Test No.	Test No.
Initial: Water content	w_o	19.0 %	%	%	%
Initial: Void ratio	e_o				
Initial: Saturation	S_o	%	%	%	%
Initial: Dry density, lb/cu ft	γ_d	111			
Time to failure, min	t_f	11			
Unconfined compressive strength, tons/sq ft	q_u	2.0			
Undrained shear strength, tons/sq ft	s_u	1.0			
Sensitivity ratio	S_t				

Classification sandy CLAY (CL)

LL 40 | PL 12 | PI 28 | G_s

Specimen Diam 2.8 cm in. | Specimen Height 7.2 cm in.

Remarks

Project Wallisville Reservoir

Area FOUNDATION MATERIAL

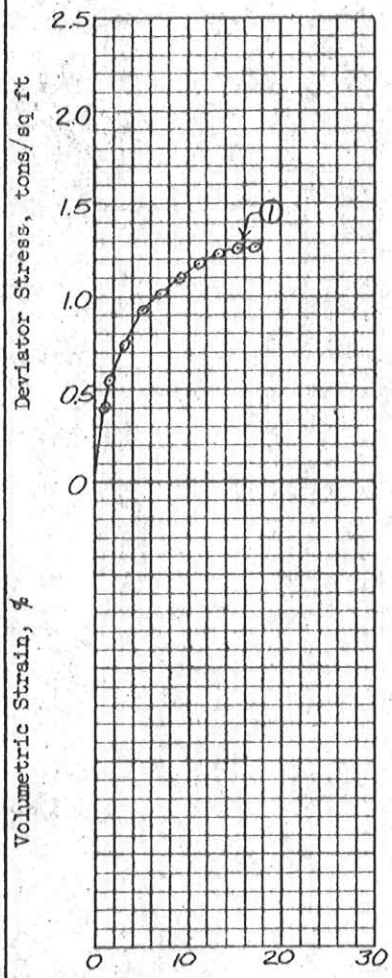
Boring No. 3ST-113 Sample No. M-8016

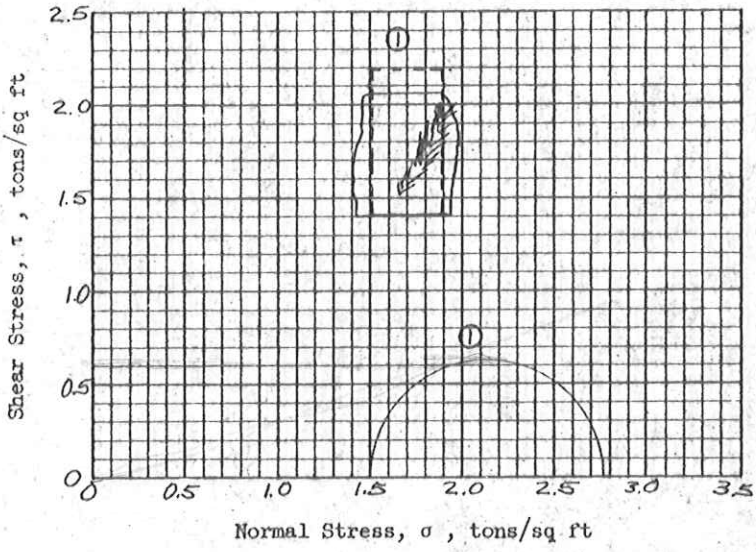
Depth, ~~ft~~ 58.5-59.5 Date DEC 64

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 1 MAY 63 3659 (TRANSLUCENT)

C 8927 LATE NO 22





Test No.			1			
Initial	Water content	w_o	24.7 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density lb/cu ft	γ_d	99			
Before Test	Water content	w_c	%	%	%	%
	Saturation	S_c	%	%	%	%
	Consolidation press., tons/sq ft	σ_c				
	Void ratio	e_c				
Final	Water content	w_f	%	%	%	%
	Void ratio	e_f				
Major principal stress, tons/sq ft		σ_1	2.76*			
Minor principal stress, tons/sq ft		σ_3	1.5			
Time to failure, min			30*			
Initial diameter, ~~cm~~ in			1.4			
Initial height, H_o, ~~cm~~ in			3.0			

Shear Values

ϕ = _____ °

tan ϕ = _____

c = _____ tons/sq ft

Type Test Q

Method of Saturation _____ ☐ Controlled Stress ☑ Controlled Strain

Type of specimen UNDISTURBED Rate of strain 0.015 in./min

Classification sandy CLAY (CL)

LL | PL | PI | D_{10}

Remarks

Project Wallisville Reservoir

Area FOUNDATION MATERIAL

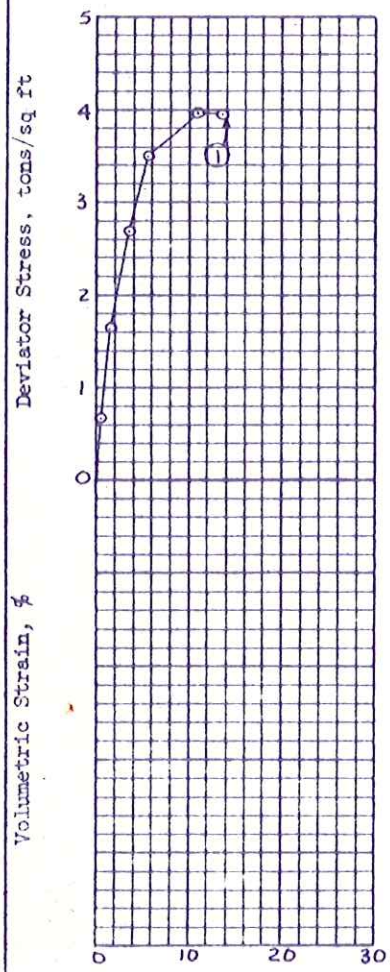
Boring No. 3ST-113 Sample No. M-8012

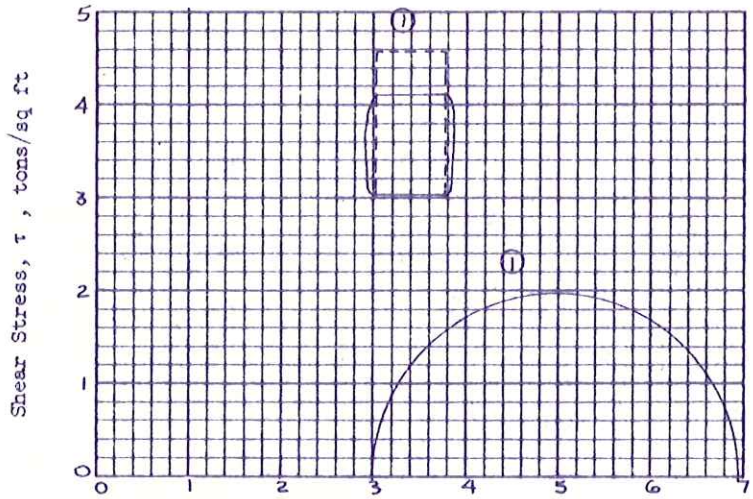
Depth ~~Bl~~ 37.0-38.0 Date DEC 64

TRIAXIAL COMPRESSION TEST REPORT

ENG FORM 1 MAY 63 2089 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PLATE NO. 27





Test No.			①			
Initial	Water content	w_o	21.5 %	%	%	%
	Void ratio	e_o				
	Saturation	S_o	%	%	%	%
	Dry density lb/cu ft	γ_d	104			
Before Test	Water content	w_c	%	%	%	%
	Saturation	S_c	%	%	%	%
	Consolidation press., tons/sq ft	σ_c				
	Void ratio	e_c				
Final	Water content	w_f	%	%	%	%
	Void ratio	e_f				
Major principal stress, tons/sq ft		σ_1	6.97			
Minor principal stress, tons/sq ft		σ_3	3.0			
Time to failure, min			21			
Initial diameter, ~~cm~~ in			1.3			
Initial height, H_o, ~~cm~~ in			3.0			

Shear Values

ϕ = _____ °

tan ϕ = _____

c = _____ tons/sq ft

Type Test Q

Method of Saturation _____ ☐ Controlled Stress ☑ Controlled Strain

Type of specimen UNDISTURBED Rate of strain 0.015 in./min

Classification CLAY (CL)

LL 50 | PL 14 | PI 36 | D_{10}

Remarks

Project Wallisville Reservoir

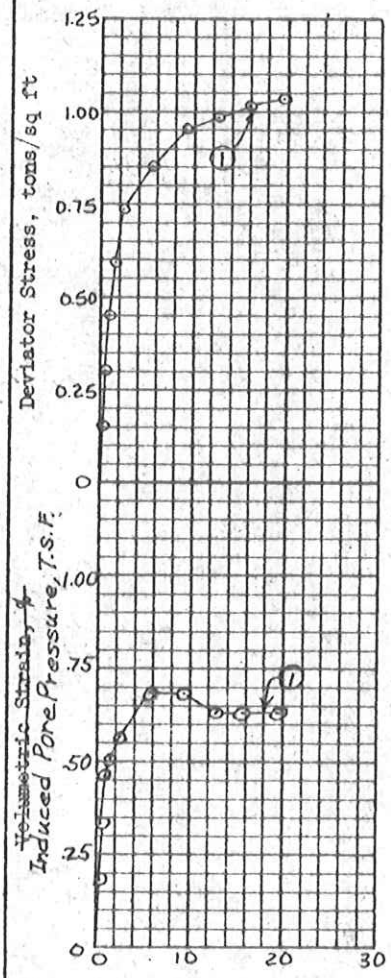
Area FOUNDATION MATERIAL

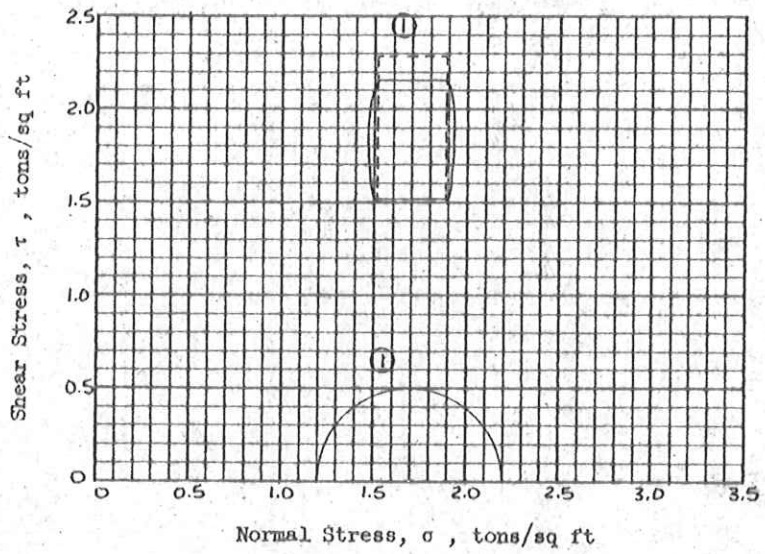
Boring No. 35T-113 | Sample No. M-8017

Depth El 63.0-63.5 | Date DEC 84

TRIAXIAL COMPRESSION TEST REPORT

ENG FORM 1 MAY 63 2089 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT) 0 3426





Test No.			①			
Initial	Water content	w_o	36.6 %	%	%	%
	Void ratio	e_o	.993			
	Saturation	S_o	99 %	%	%	%
	Dry density lb/cu ft	γ_d	84			
Before Test	Water content	w_c	34.8 %	%	%	%
	Saturation	S_c	100 %	%	%	%
	Consolidation press., tons/sq ft	σ_c	1.20			
	Void ratio	e_c	.936			
Final	Water content	w_f	34.8 %	%	%	%
	Void ratio At Failure	e_f	.936			
Major principal stress, tons/sq ft		σ_1	2.20*			
Minor principal stress, tons/sq ft		σ_3	1.20			
Time to failure, min			210*			
Initial diameter, ~~cm~~ in			1.4			
Initial height, H_o, ~~cm~~ in			3.0			

Shear Values

ϕ = _____ °

tan ϕ = _____

c = _____ tons/sq ft

Type Test R

Method of Saturation Back Pressure ☐ Controlled Stress ☑ Controlled Strain

Type of specimen UNDISTURBED Rate of strain 0.002 (nominal) in./min

Classification CLAY (CH)

LL 70 PL 20 PI 50 D_{10} G 2.69

Remarks *At 15% strain.

Project Wallisville Reservoir

Area FOUNDATION MATERIAL

Boring No. 35T-113 Sample No. M-8009

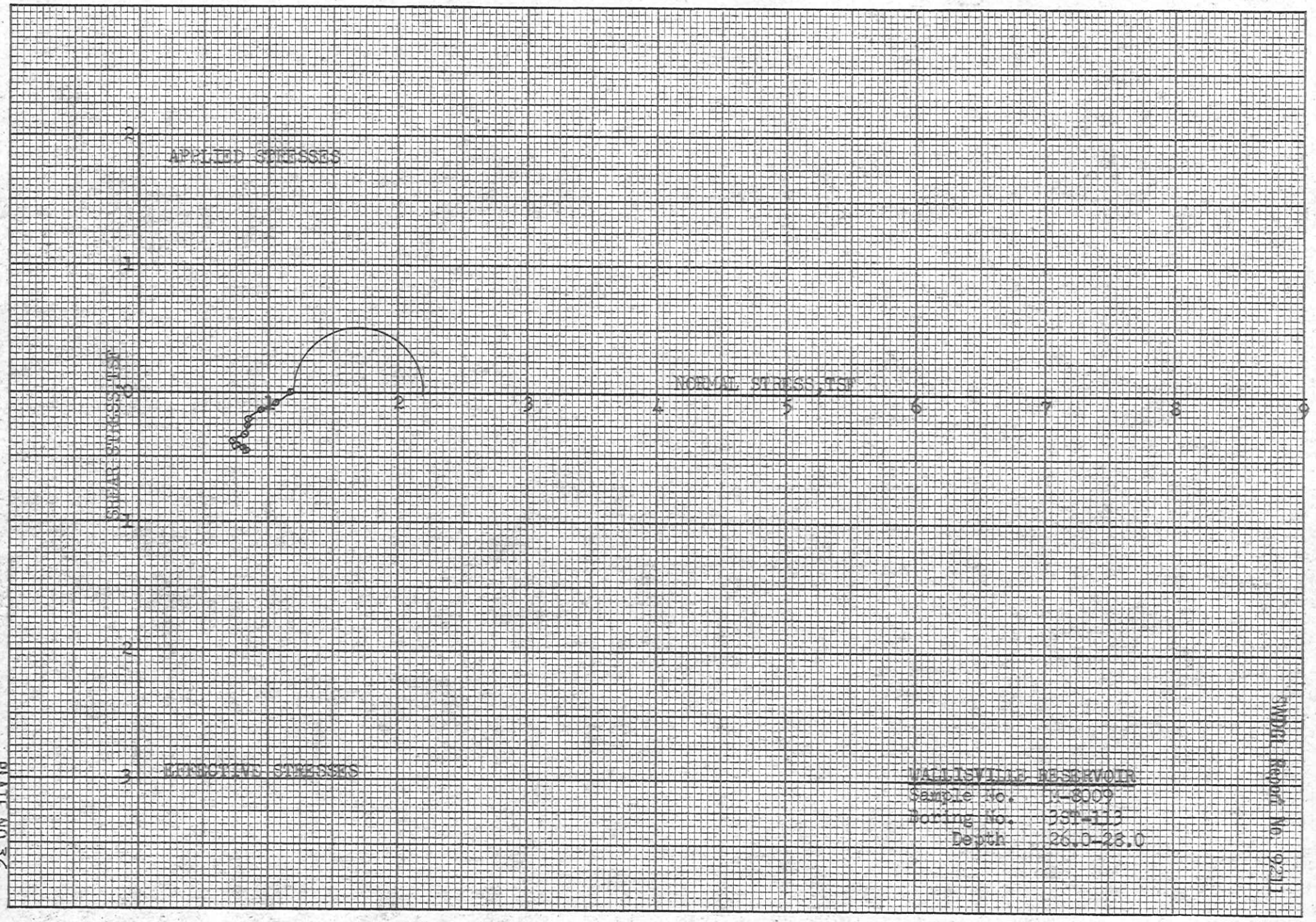
Depth ~~Pl~~ 26.0-28.0 Date DEC 64

TRIAXIAL COMPRESSION TEST REPORT

ENG FORM 1 MAY 63 2089 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

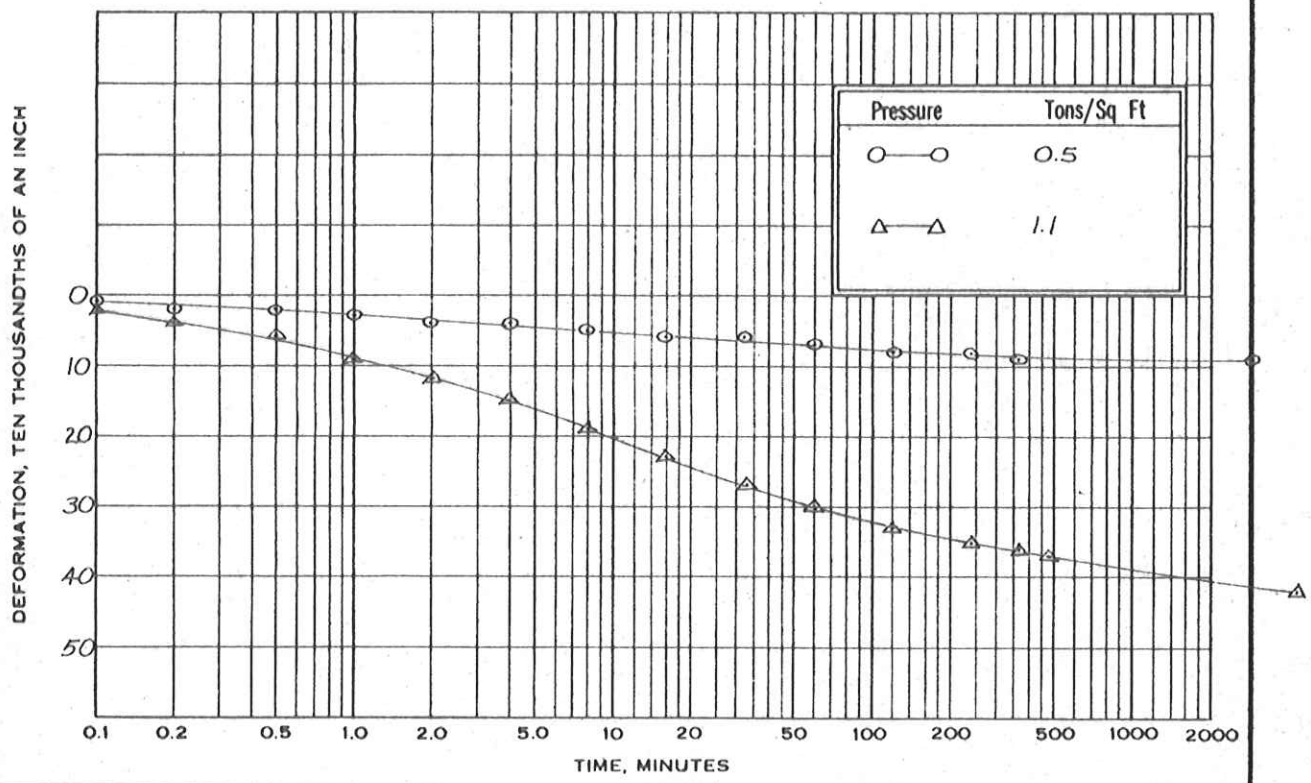
0 3426

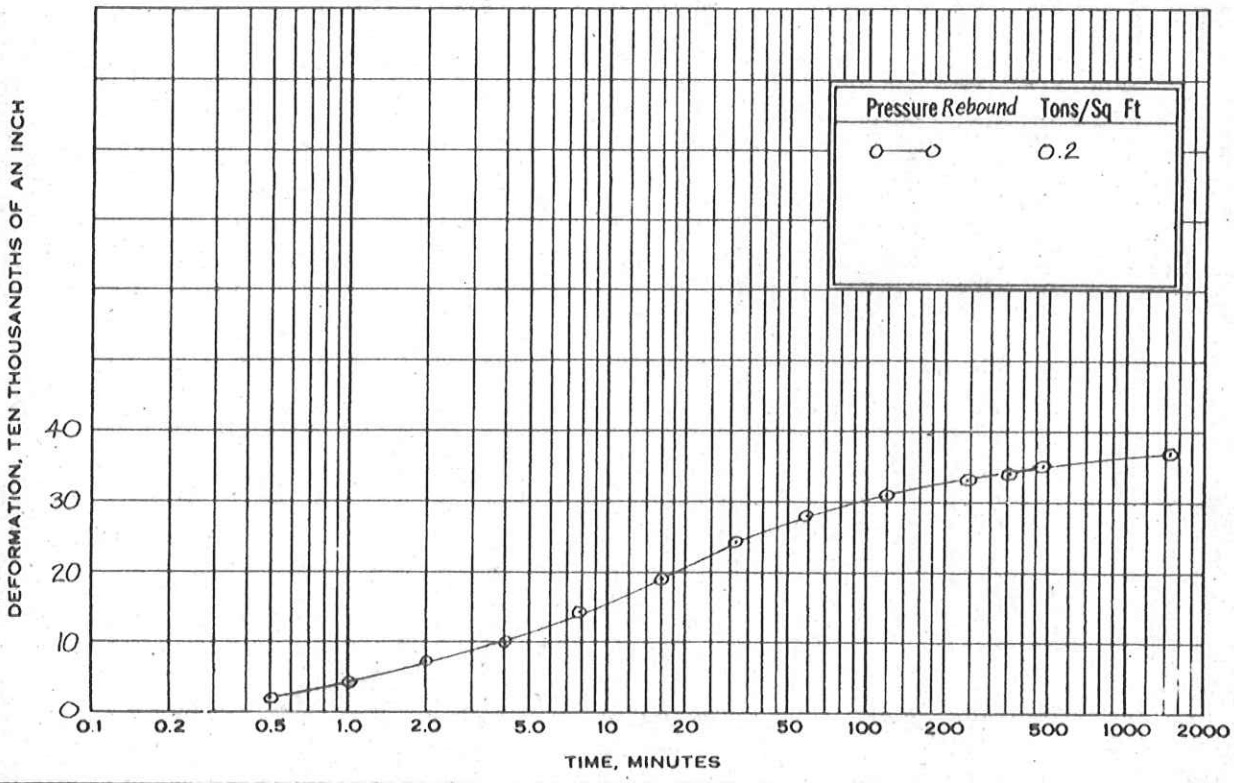
PLATE NO. 35



SWDGL Report No. 9211

PLATE NO. 36



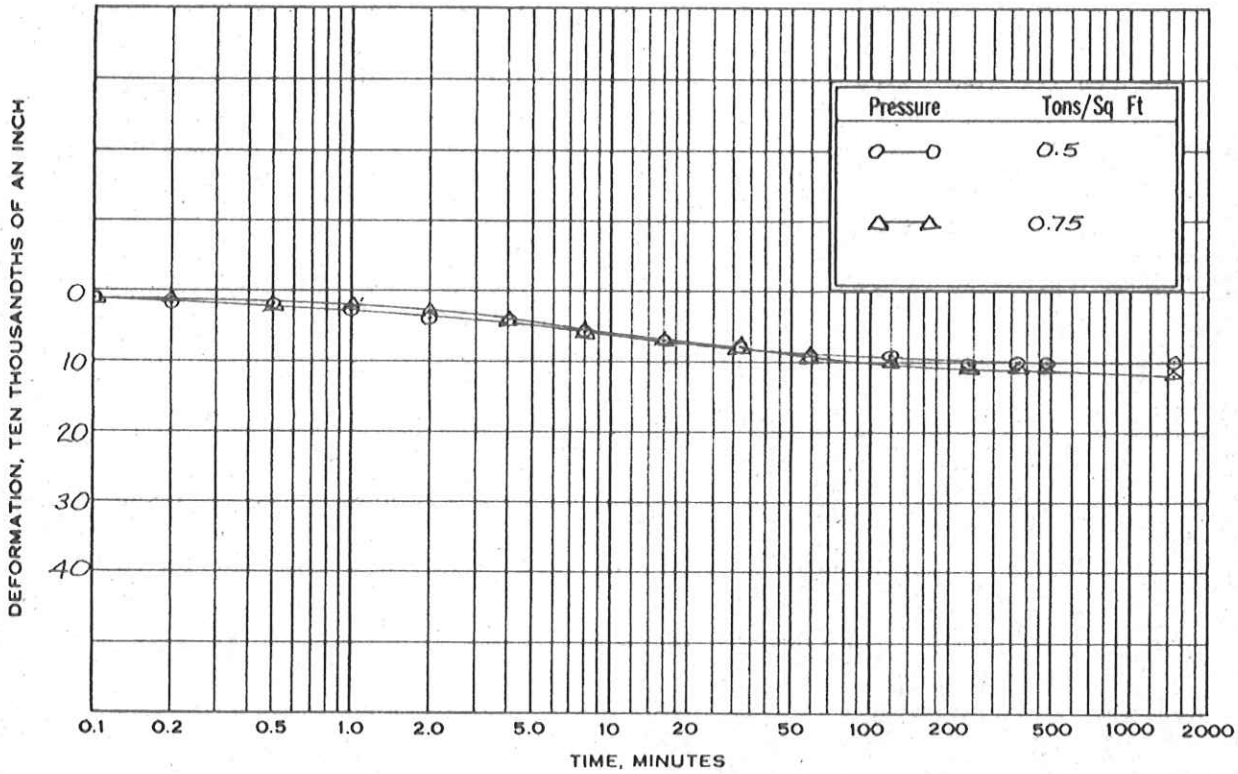


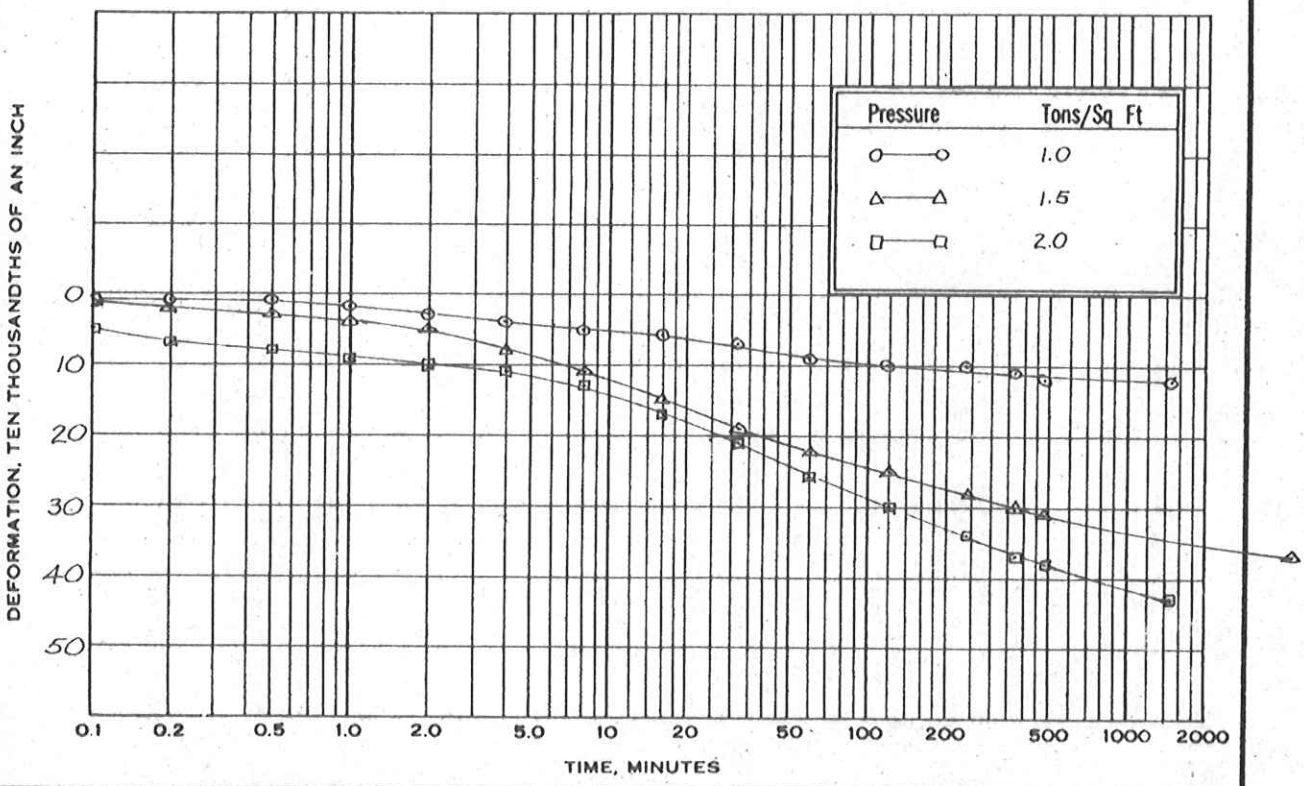
Project Wallisville Reservoir			
Area FOUNDATION MATERIAL			
Boring No. 35T-113	Sample No. M-8010	~~Elev or~~ Depth 31.0-33.0	Date DEC 84

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 71 2088 (Translucent) (EM 1110-2-1803)

PLATE NO. 46

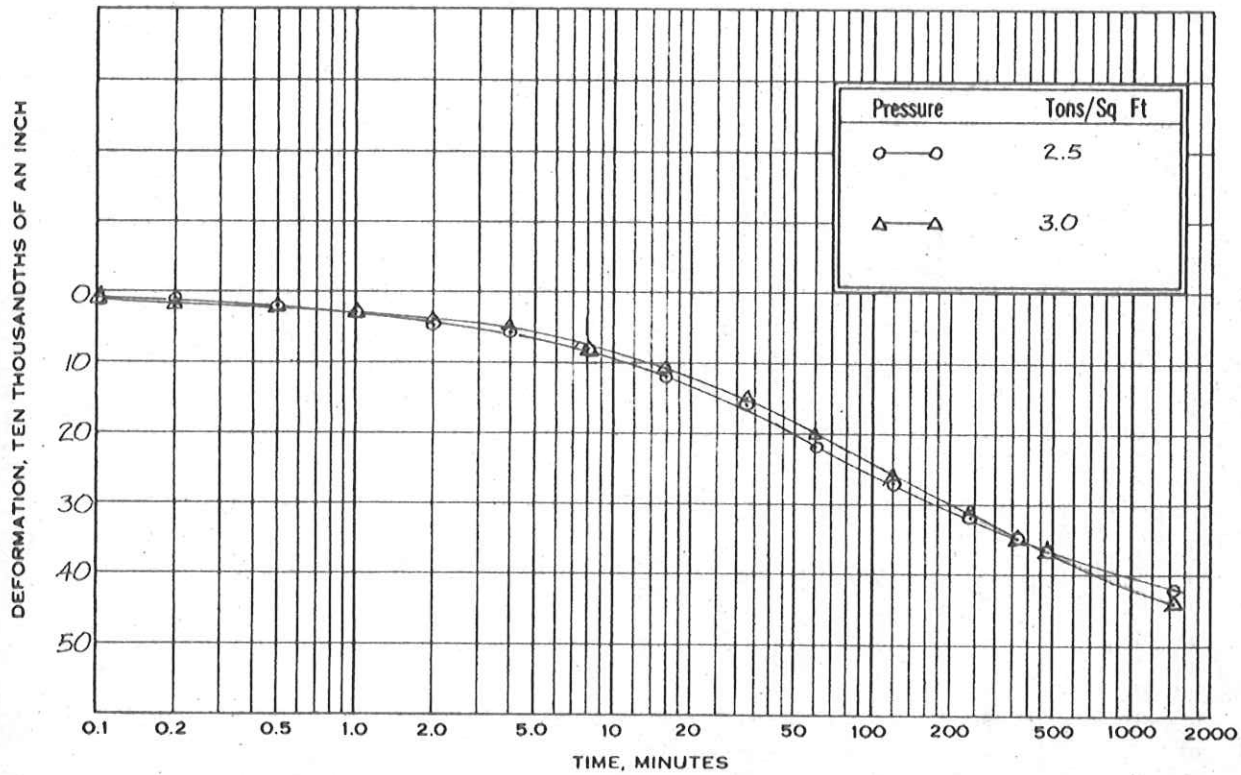


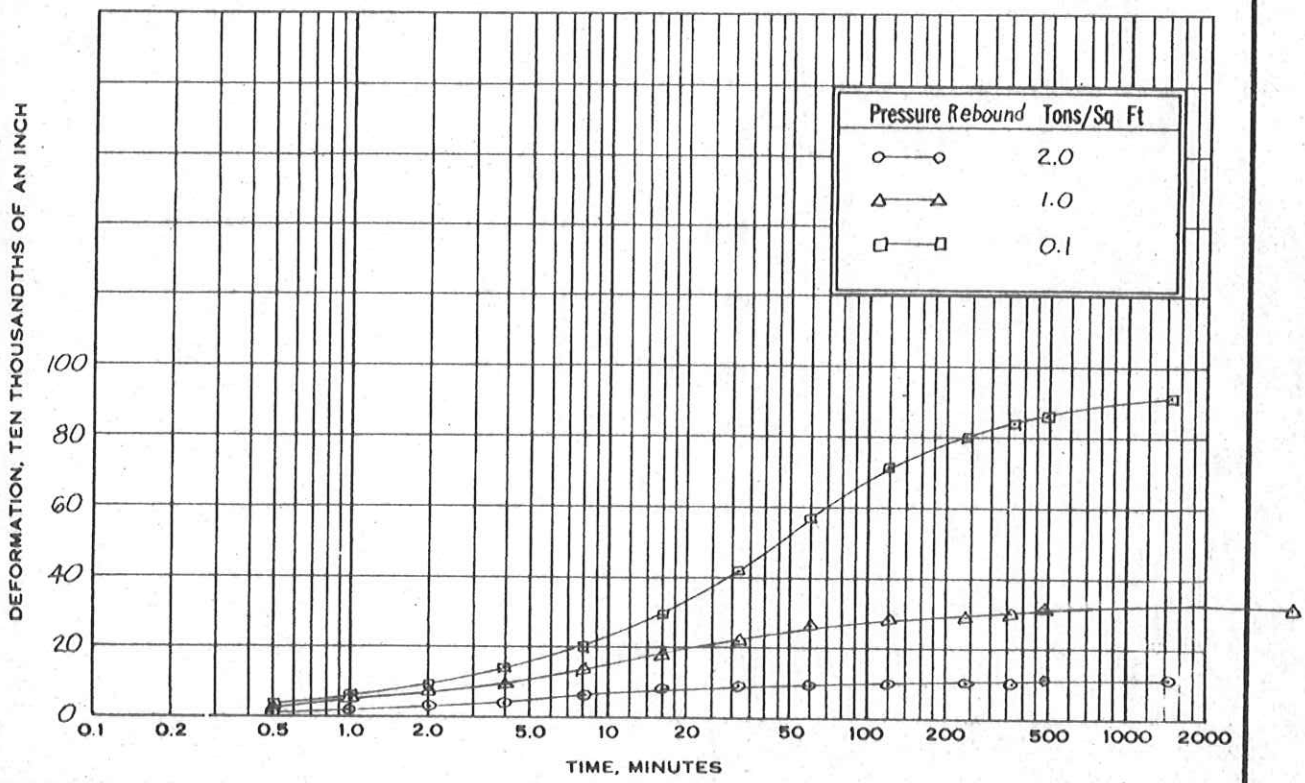


Project	Wallisville Reservoir		
Area	FOUNDATION MATERIAL		
Boring No. 35T-113	Sample No. M-8010	~~Elev or~~ Depth 31.0-33.0	Date DEC 64

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 51 2088 (Translucent) (EM 1110-2-1803)

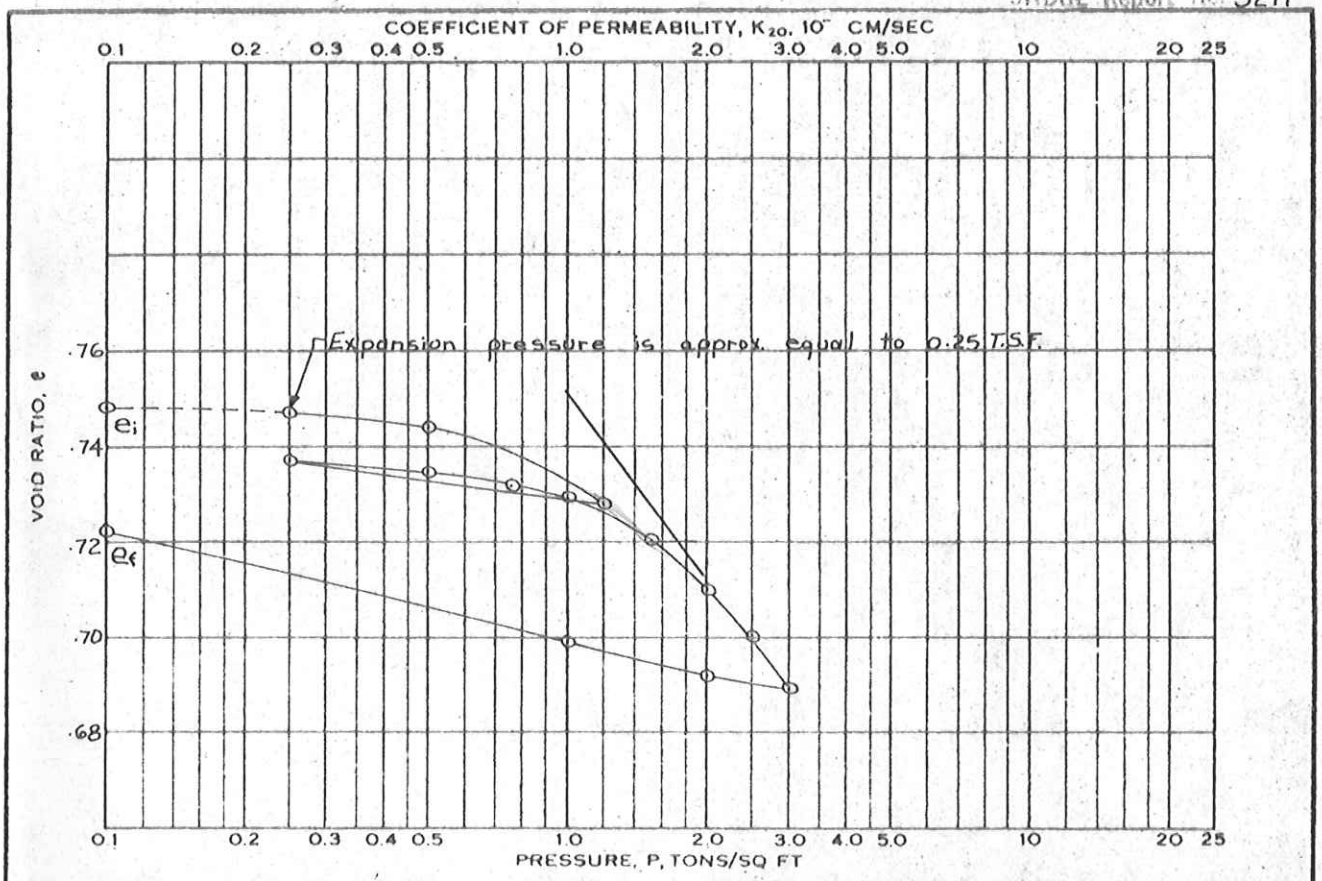




Project Wallisville Reservoir			
Area FOUNDATION MATERIAL			
Boring No. 35T-113	Sample No. M-8010	Elev ~~or~~ Depth 31.0-33.0	Date DEC 64

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 51 2088 (Translucent) (EM 1110-2-1803)



TEST DATA

Type of Specimen UNDISTURBED

Overburden Pressure, P_o 1.06 Tons/Sq Ft

Preconsol Pressure, P_c 0.75 Tons/Sq Ft

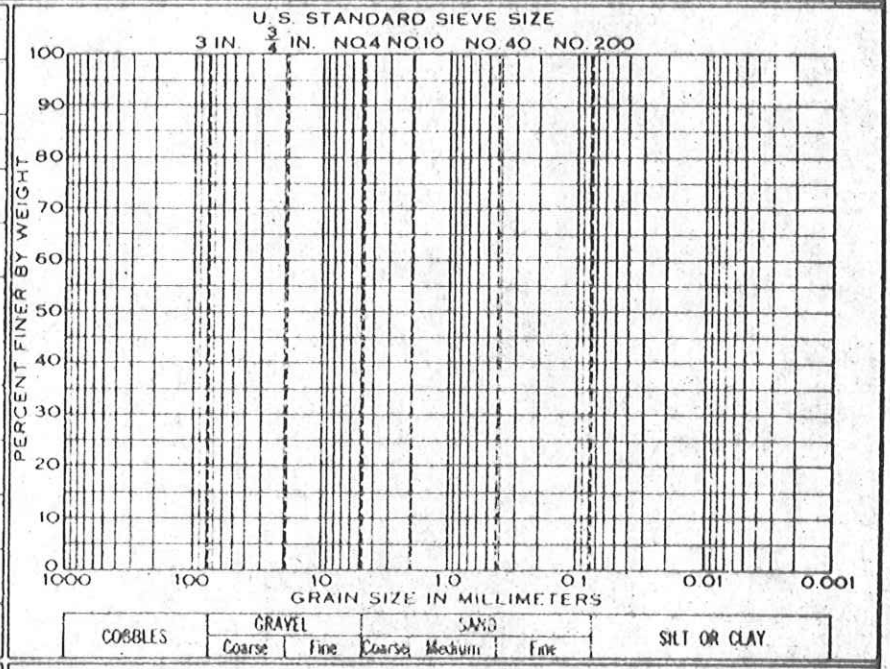
Compression Index, C_c 0.14

Permeability at Initial e

K_{20} _____ x 10^{-} Cm/Sec

_____ Ft/Min

Initial Ht. 2H = 0.75 in.	Diam. 2.22 in.	
Initial Saturation, S_o	%	97
Final Saturation, S_f	%	100
Initial Dry Density	Lbs/Cu Ft	96
Initial Water Content, W_o	%	26.9



Remarks:

Classification CLAY (CL)

LL 45	G 2.69
PL 16	D_{10}

Project Wallisville Reservoir

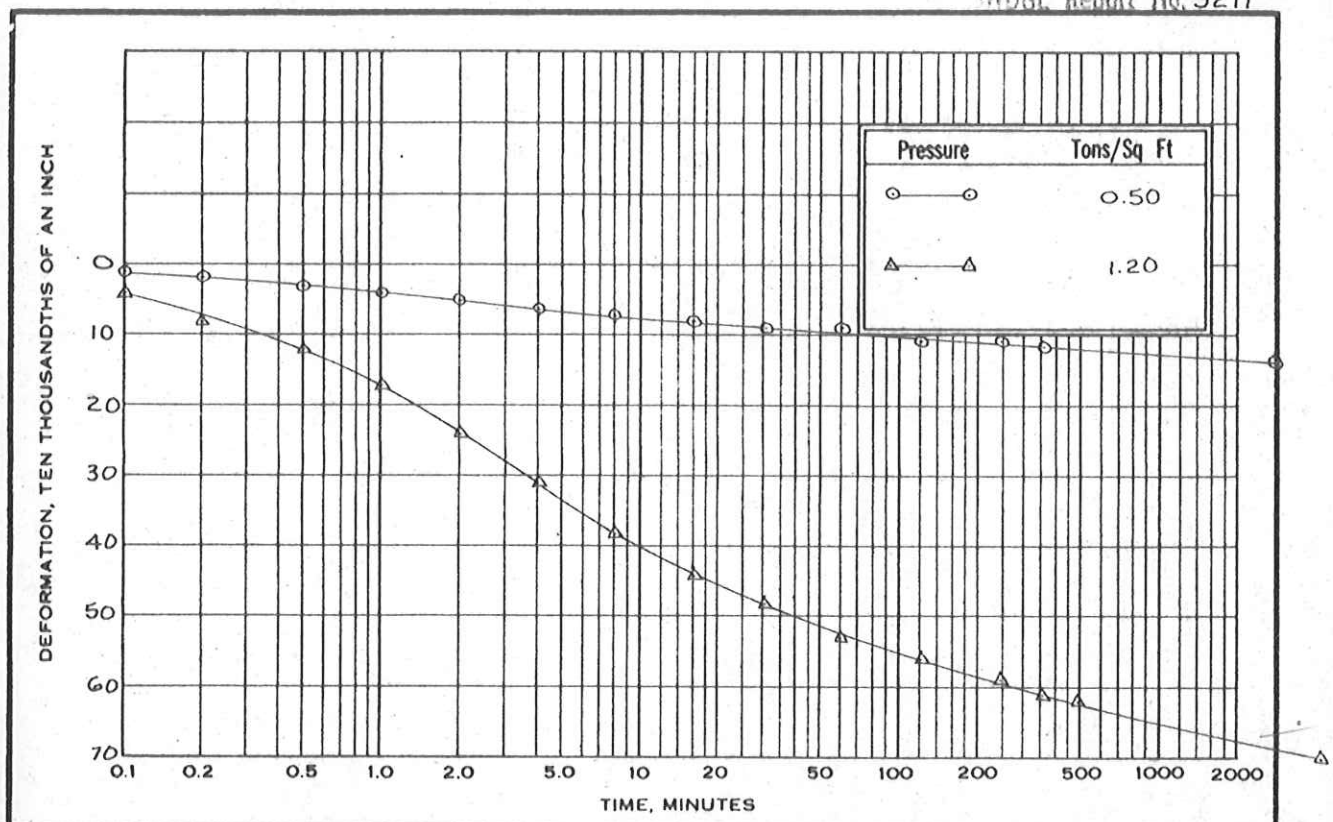
Area FOUNDATION MATERIAL

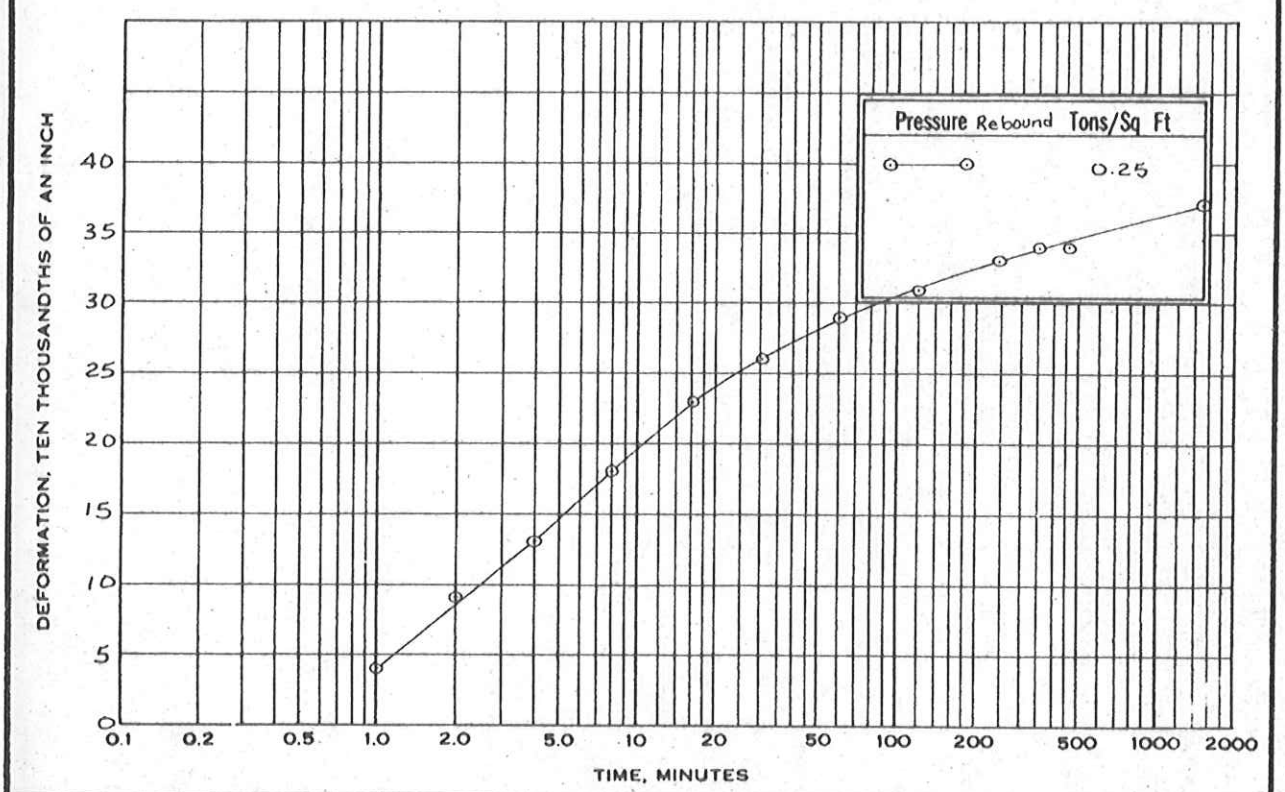
Boring No. 3ST-113 Sample No. M-8011

~~Elev or~~ Depth 36.0 - 37.0 Date DEC 64

CONSOLIDATION TEST REPORT

ENG FORM 1 DEC 51 2090



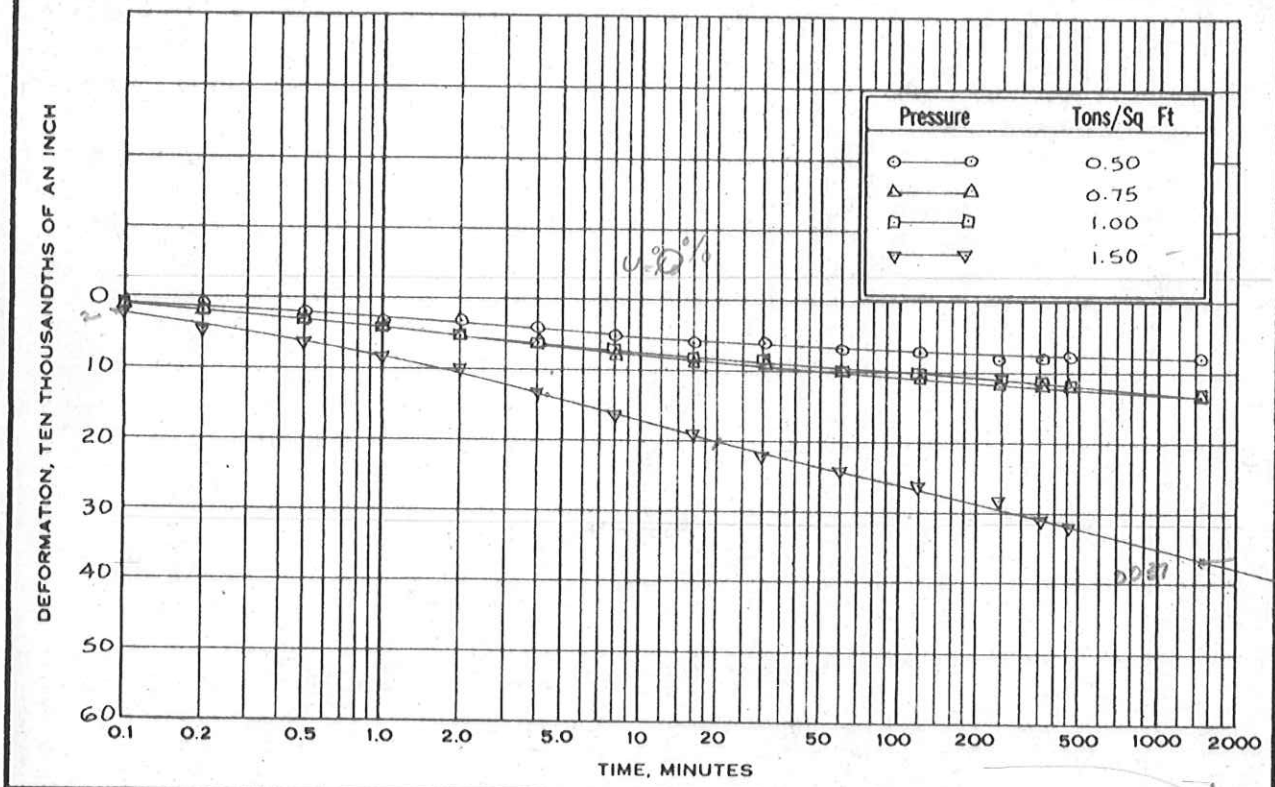


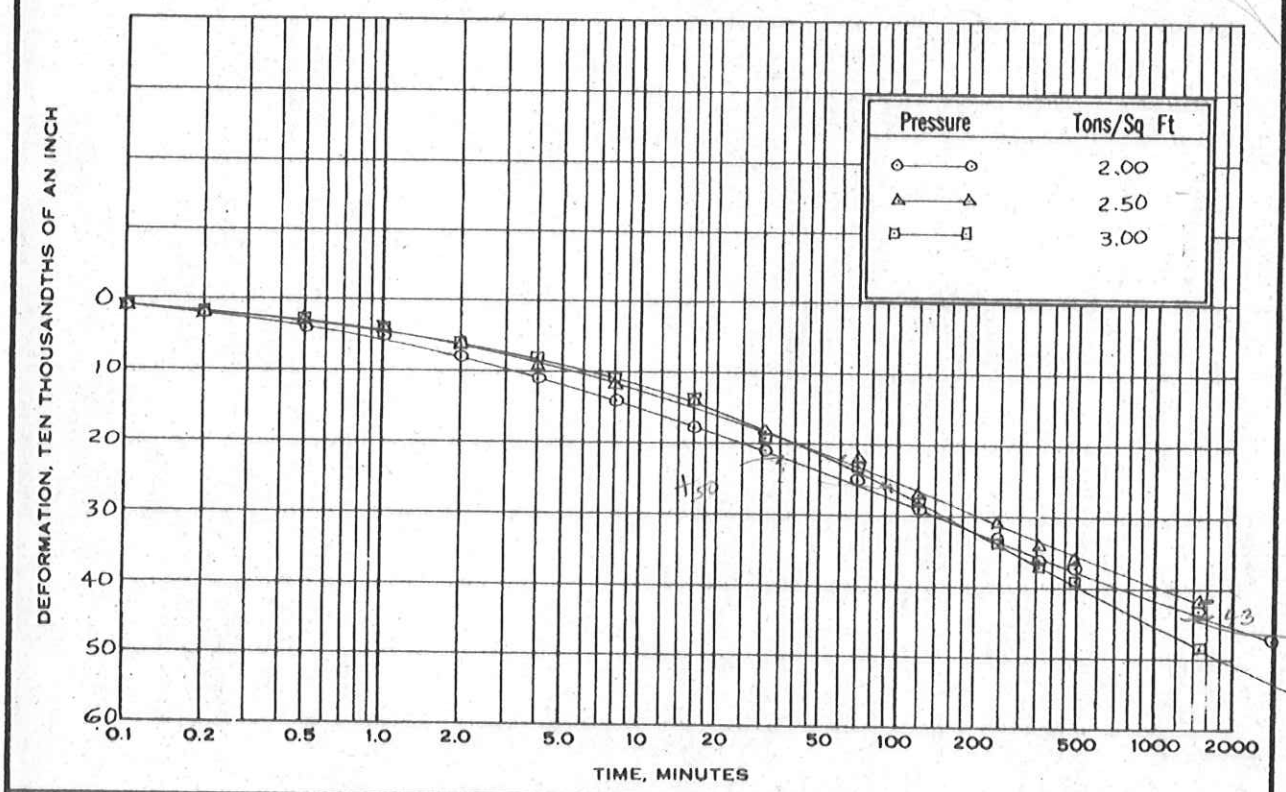
Project Wallisville Reservoir			
Area FOUNDATION MATERIAL			
Boring No. 35T-113	Sample No. M-8011	Elev or Depth 36.0-37.0	Date DEC 84

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 71 2088 (Translucent) (EM 1110-2-1803)

PLATE NO. 50



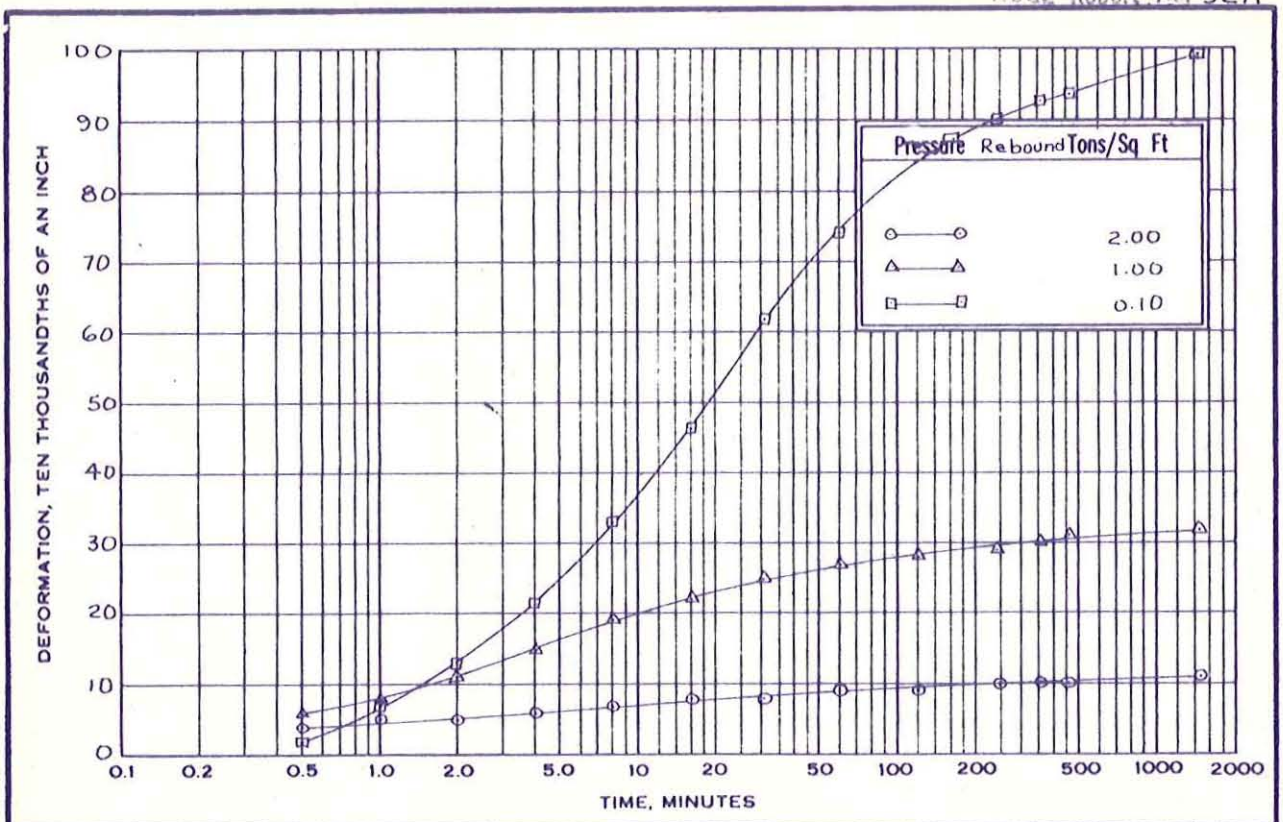


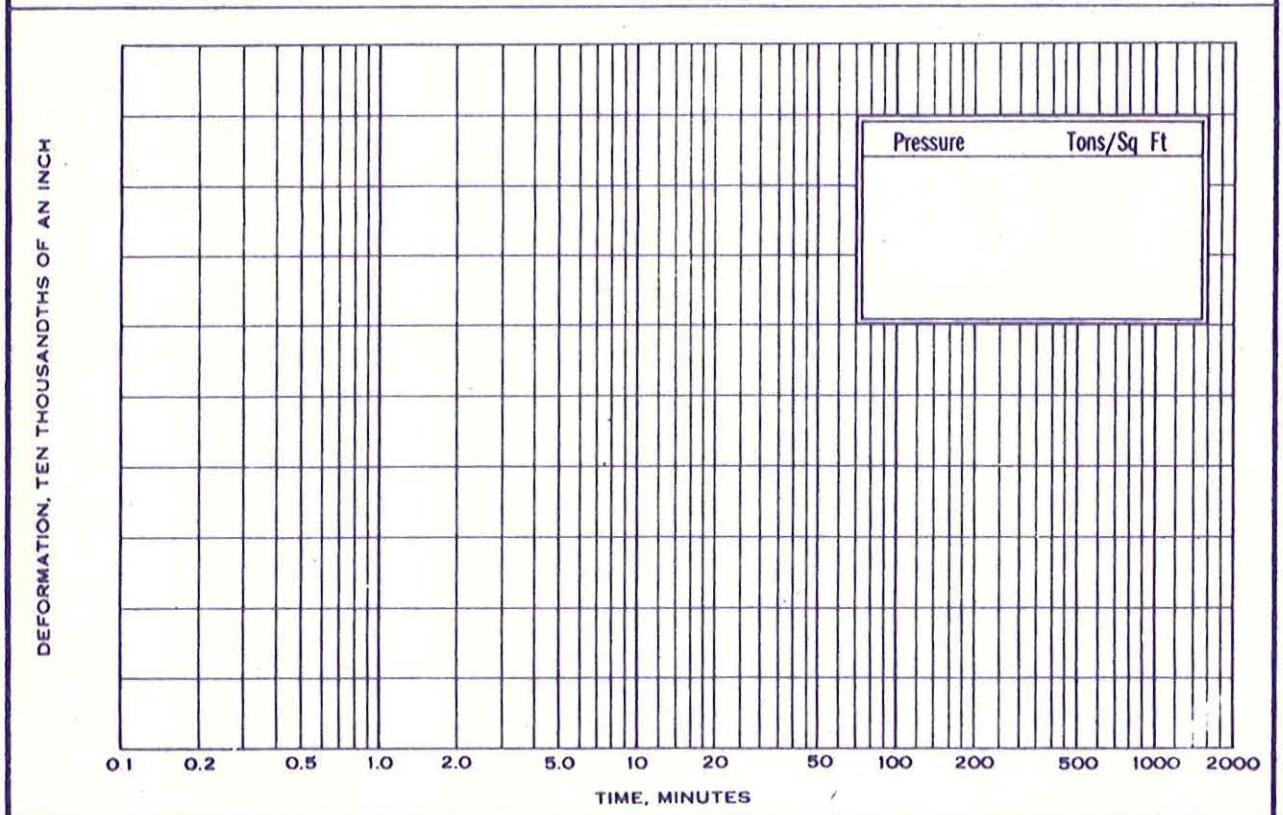
Project Wallisville Reservoir			
Area FOUNDATION MATERIAL			
Boring No. 3ST-113	Sample No. M-8011	Elev or Depth 36.0-37.0	Date DEC 64

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 51 2088 (Translucent) (EM 1110-2-1803)

PLATE NO. 51





Project Wallisville Reservoir			
Area FOUNDATION MATERIAL			
Boring No. 35T-113	Sample No. M-8011	Elev or Depth 36.0-37.0	Date DEC 64

CONSOLIDATION TEST-TIME CURVES

ENG FORM 1 DEC 71 2088 (Translucent) (EM 1110-2-1803)

PLATE NO. 52