Claiborne and Millers Ferry Locks and Dams Fish Passage Study

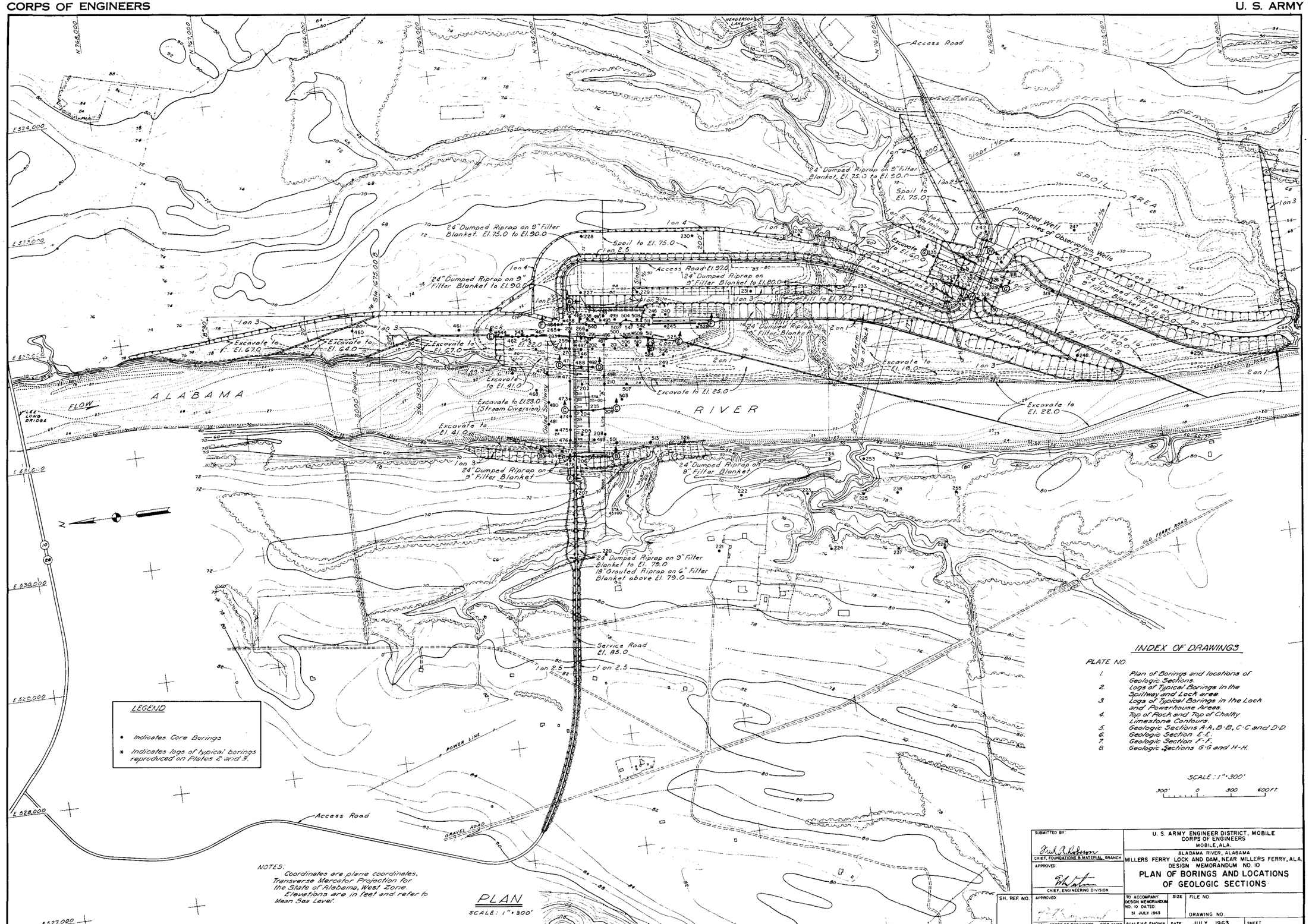
Appendix G – Geotechnical Engineering

Exhibit G-1 Boring Logs and Lab Data

May 2023

US Army Corps of Engineers

The Nature Conservancy


Access Road
HENDERSON'S LAKE
24" Dumped Riprap on 9" Filter Blanket. El. 75.0 to El. 90.0
Spoil to El. 75.0
1 on 2.5
Access Road El. 97.0
24" Dumped Riprap on 9" Filter Blanket to El. 80.0
Fill to El. 70.0
Lock
Excavate to El. 67.0
Excavate to El. 64.0
Excavate to El. 32.0
Excavate to El. 41.0
Excavate to El. 23.0 (Stream Diversion)
Excavate to El. 25.0
Excavate to El. 19.0
Excavate to El. 22.0
Excavate to El. 20.0
Excavate to El. 90.0
Sta. 1675.00
Sta. 1300.00
300' Radius
2000' Radius
10' Berm Top of Rock
Slope 1½:1
Slope 1:1
Slope 2:1
SPOIL AREA
Pumped Well
Lines of Observation Wells
Retaining Walls
Non-Diversion Weir
ALABAMA
RIVER
FLOW
LEE LONG BRIDGE
24" Dumped Riprap on 9" Filter Blanket
24" Dumped Riprap on 9" Filter Blanket to El. 79.0
18" Grouted Riprap on 6" Filter Blanket above El. 79.0
Service Road El. 85.0
POWER LINE
GRAVEL ROAD
OLD FERRY ROAD
Access Road
E 534,000
E 533,000
E 532,000
E 531,000
E 530,000
E 529,000
E 528,000
E 527,000
N 768,000
N 767,000
N 766,000
N 765,000
N 764,000
N 763,000
N 762,000
N 761,000
N 760,000
N 759,000
N 758,000
LEGEND
• Indicates Core Borings
* Indicates logs of typical borings reproduced on Plates 2 and 3.
NOTES:
Coordinates are plane coordinates, Transverse Mercator Projection for the State of Alabama, West Zone.
Elevations are in feet and refer to Mean Sea Level.
PLAN
SCALE: 1" = 300'
INDEX OF DRAWINGS
PLATE NO.
1. Plan of Borings and locations of Geologic Sections.
2. Logs of Typical Borings in the Spillway and Lock area
3. Logs of Typical Borings in the Lock and Powerhouse Areas.
4. Top of Rock and Top of Chalky Limestone Contours.
5. Geologic Sections A-A, B-B, C-C and D-D.
6. Geologic Section E-E.
7. Geologic Section F-F.
8. Geologic Sections G-G and H-H.
SCALE: 1" = 300'
300' 0 300 600 FT.
SUBMITTED BY:
CHIEF, FOUNDATIONS & MATERIAL BRANCH
APPROVED:
CHIEF, ENGINEERING DIVISION
APPROVED
COL., CORPS OF ENGINEERS, DIST ENGR
SH. REF. NO.
U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.
ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 10
PLAN OF BORINGS AND LOCATIONS OF GEOLOGIC SECTIONS
TO ACCOMPANY DESIGN MEMORANDUM NO. 10 DATED 31 JULY 1963
SIZE
FILE NO.
DRAWING NO.
SCALE: AS SHOWN
DATE JULY 1963
SHEET

CORPS OF ENGINEERS | U. S. ARMY

DEPARTMENT OF THE ARMY — DRILLING LOG
DIVISION: Corps of Engineers — INSTALLATION: Mobile District
1- PROJECT: Millers Ferry LSD — SHEET 1 OF 1
2- LOCATION (coordinates or Station): B.L. Sta. 50+11, 200' U.S.
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (as shown on drawing title and file no.): 477
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 46.5
8- DEPTH DRILLED INTO ROCK: 2.5
9- TOTAL DEPTH OF HOLE: 97.0
10- SIZE AND TYPE OF BIT: 4x5½" Internal Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 2
15- ELEV. GROUND WATER: 30.6
16- DATE HOLE: STARTED 5/7/63, COMPLETED 5/9/63
17- ELEV. TOP OF HOLE: 73.6
18- TOTAL CORE RECOVERY FOR BORING (%): 87
19- SIGNATURE OF INSPECTOR: J. Norton

ELEVATION	DEPTH	HARD SCALE	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
			Silty clay, brown, stiff				
39.6	36.0		Clayey sand, gray				
31.1	44.5	C & E	Clay, black, micaceous, tightly consolidated, uncemented, w/ chalky limestone zones	81	1		Top of Rock; El. 29.4 to 28.7 Chalky Limestone; El. 27.2 to 26.6 " "
23.1 / 22.1	52.5 / 53.5	C & Co	Sandstone, argillaceous, friable; Sandstone, calc., fossil., w/arg. sand layers	100	2		El. 25.4 to 23.1 " "; El. 24.1 to 23.5 " "
17.8	57.8	C	Sandstone, argillaceous, tightly consolidated, friable	88	3		Hardness Scale: A-Soft as mud; B-Penetrate w/pencil; C-" " w/knife; D-Cut "; E-Scratch "; F-Can't " "
15.3	60.3	D	Chalky limestone	100	3		
7.1	68.5	D	Chalky limestone, sandy, fossil.	100	4		
2.4	73.1						
0.0	75.6	E	Sandstone, calc., fossiliferous	84			
		E to B	Sandstone, calc., fossiliferous w/interbedded layers of sand	56	5		
-10.2	85.8	C	Sandstone, argillaceous, friable micaceous, tightly consolidated	54	6		Hard calc., sandstone layers: El. -11.8 to -12.3; El. -16.4 to -17.1
-19.2	94.8						
-21.4	97.0	B	Clayey sand, micaceous, loosely consolidated	94	7		Bottom of Hole

8 bags of cement pumped into hole

END FORM 1 JUN 57 1836 (TRANSLUCENT) (ER 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT Millers Ferry — HOLE NO. 477

DEPARTMENT OF THE ARMY — DRILLING LOG
DIVISION: Corps of Engineers — INSTALLATION: Mobile District
1- PROJECT: Millers Ferry LSD — SHEET 1 OF 1
2- LOCATION (coordinates or Station): Base Line Sta. 56+47-300' U.S.
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (as shown on drawing title and file no.): 472
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 6.0
8- DEPTH DRILLED INTO ROCK: 24.5
9- TOTAL DEPTH OF HOLE: 32.5
10- SIZE AND TYPE OF BIT: 4x5½" B.D.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 3
15- ELEV. GROUND WATER: 30.6
16- DATE HOLE: STARTED 5/14/63, COMPLETED 5/16/63
17- ELEV. TOP OF HOLE: 24.8
18- TOTAL CORE RECOVERY FOR BORING (%): 65
19- SIGNATURE OF INSPECTOR: P. Dickey

ELEVATION	DEPTH	HARD SCALE	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
			Overburden, mostly sand. Gravel near top of rock				
18.8	6.0	D	Chalky limestone, fossiliferous light gray	80			Top of Rock
14.4	10.4	D	Chalky limestone, sandy, fossiliferous, light gray	100	1		
9.2	15.6		Sandstone, calcareous, large fossils, light gray				
7.0	17.8	E	Interbedded calcareous sandstone and sand	90			
		E & B		40	2		No artesian flow encountered
-2.4	27.2			52			
-7.7	32.5	C	Sand, micaceous, fossiliferous, argillaceous, dark gray	89	3		
				60			Bottom of Hole
			Hole not cemented				Hardness Scale: A-Soft as mud; B-Penetrated w/pencil; C-" " w/knife; D-Slice "; E-Scratch "; F-Will Not " "

END FORM 1 JUN 57 1836 (TRANSLUCENT) (ER 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT Millers Ferry — HOLE NO. 472

DEPARTMENT OF THE ARMY — DRILLING LOG
DIVISION: Corps of Engineers — INSTALLATION: Mobile District
1- PROJECT: Millers Ferry LSD — SHEET 1 OF 1
2- LOCATION (coordinates or Station): Base Line Sta. 50+68-300' U.S.
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (as shown on drawing title and file no.): 544
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 8.2
8- DEPTH DRILLED INTO ROCK: 63.5
9- TOTAL DEPTH OF HOLE: 81.7
10- SIZE AND TYPE OF BIT: 4x5½" B.D.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 2
15- ELEV. GROUND WATER: 61.7
16- DATE HOLE: STARTED 5/7/63, COMPLETED 5/7/63
17- ELEV. TOP OF HOLE: 73.7
18- TOTAL CORE RECOVERY FOR BORING (%): 91
19- SIGNATURE OF INSPECTOR: C. Canning

ELEVATION	DEPTH	HARD SCALE	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
73.7	1.0		Top Soil				
71.7	5.0		Clay, silty, orange				Note: Auger samples taken continuously to water table then samples were taken every 5.0' to top of rock
66.2	10.5		Clay, sandy, orange				
61.7	15.0		Sand, clayey, tan				Hardness Scale: A-Soft as mud; B-Penetrated by pencil; C-" " knife; D-Cut " "; E-Scratched " "; F-Can't be " "
58.7	18.0		Sand, fine to medium, tan				
51.7	25.0		Sand w/pea gravel, tan				
48.5	28.2		Sand & gravel, tan				Top of Rock
		C & E	Clay, black, tiny, fissile bedded, compacted, w/interbedded layers of limestone, chalky & sandy	100 / 100	1		Limestone layers, Hard. E: El. 48.5 to 48.0 " " "; El. 47.4 to 47.1 " " "; El. 46.1 to 45.6 " " "; El. 44.8 to 45.3 " " "
42.4	34.5	E & C	Sandstone, calcareous, gray, w/interbedded layers of sand, argillaceous, micaceous, compacted	100 / 100	2		Sandstone layers, Hard. E: El. 34.3 to 33.9 " " "; El. 31.7 to 31.5 " " "; El. 30.0 to 29.5 " " "; El. 28.0 to 27.3 " " "
34.9	41.8	B & E	Sand, micaceous, fine to medium, gray, w/interbedded layers of sandstone, calc.	100	3		Conglomerate, glauconitic, El. 27.3 to 26.9
26.9	49.8						
25.3	51.4	D	Chalky limestone, gray	84			
		D	Chalky limestone, sandy, fossiliferous, gray	100	4		
20.9	55.8	E	Sandstone, calcareous, gray				
17.3	59.2	E & B	Sandstone, calcareous, gray, w/interbedded layers of sand containing some shell fragments	84 / 58 / 60	5		
5.5	71.2	C & E	Sand, argillaceous, micaceous, compacted, w/interbedded layers of sandstone	100	6		Sandstone layer: El. 5.3 to 2.3
0.0	76.7	B	Sand, clayey, micaceous, gray	100	7		
-5.0	81.7						Bottom of Hole
			Plugged hole w/7 sacks of cement				

END FORM 1 JUN 57 1836 (TRANSLUCENT) (ER 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT Millers Ferry — HOLE NO. 544

DEPARTMENT OF THE ARMY — DRILLING LOG
DIVISION: Corps of Engineers — INSTALLATION: Mobile District
1- PROJECT: Millers Ferry LSD — SHEET 1 OF 2
2- LOCATION (coordinates or Station): Sta. 61+74, 23 ft. D.S. from BL
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (as shown on drawing title and file no.): 495
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 40.5
8- DEPTH DRILLED INTO ROCK: 60.2
9- TOTAL DEPTH OF HOLE: 102.7
10- SIZE AND TYPE OF BIT: 4x5½" Internal Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 8
15- ELEV. GROUND WATER: 59.2
16- DATE HOLE: STARTED 5/17/63, COMPLETED 5/17/63
17- ELEV. TOP OF HOLE: 73.7
18- TOTAL CORE RECOVERY FOR BORING (%): 92
19- SIGNATURE OF INSPECTOR: J. Norton

ELEVATION	DEPTH	HARD SCALE	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
70.2	3.5		Sandy clay, brown				Dry samples taken in overburden, samples discarded
			Sandy clay, reddish brown				
62.2	11.5		Silty sand, brown				Hardness Scale: A-Soft as mud; B-Penetrate with pencil; C-" " knife; D-Cut " "; E-Scratch " "; F-Can't " "
52.2	21.5		Sand & gravel				
43.2	30.5		Gravelly sand				
32.1	40.5		Clay, black micaceous	0			Top of Rock
31.1	41.5			73			
		C & E	Clay, black, micaceous, tightly consolidated, uncemented, with cemented chalky zones	100	1		
				100			
				100	2		
14.4	58.8	E to Co	Calcareous sandstone, w/ argillaceous zones	100	3		El. 8.2-4.8 partly cemented Hardness "E" to "D"
10.9	62.3	C	Sandstone, argillaceous, tightly consolidated, friable	100			
4.8	68.4	D	Chalky limestone	100	4		
3.3	70.5			100	5		
1.9	80.1	D	Chalky limestone, sandy, fossiliferous	100			El. -4.5 to -5.1 Large fossils
1.5	82.7	E	Sandstone, calcareous				El. 29.1 to 28.6 Chalky Limestone, Hardness "E"
		E to B	Sandstone, calcareous, fossiliferous, interbedded with sand	52	6		El. 27.4 -26.4 " "
-17.1	90.3			76			El. 21.7-21.5 " "
							El. 20.3-19.6 " "
		C	Sandy clay or clayey sand micaceous, tightly consolidated	100	7		El. 18.3-18.2 " "
							El. 17.4-17.3 " "
							El. 16.4-15.8 " "
-25.6	99.8			100			El. 15.0-14.6 " "

END FORM 1 JUN 57 1836 (TRANSLUCENT) (ER 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT Millers Ferry — HOLE NO. 495

DEPARTMENT OF THE ARMY — DRILLING LOG
DIVISION: Corps of Engineers — INSTALLATION: Mobile District
1- PROJECT: Millers Ferry LSD — SHEET 1 OF 1
2- LOCATION (coordinates or Station): Sta. 61+79.9, 300' U.S.
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (as shown on drawing title and file no.): 458
5- NAME OF DRILLER: S. Burnette
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 9.8
8- DEPTH DRILLED INTO ROCK: 86.9
9- TOTAL DEPTH OF HOLE: 96.7
10- SIZE AND TYPE OF BIT: 4x5½" Bottom Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 8
15- ELEV. GROUND WATER: 56.5
16- DATE HOLE: STARTED 5/14/63, COMPLETED 5/16/63
17- ELEV. TOP OF HOLE: 72.3
18- TOTAL CORE RECOVERY FOR BORING (%): 89
19- SIGNATURE OF INSPECTOR: C. Canning

ELEVATION	DEPTH	HARD SCALE	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
71.9	0.6		Top soil				Note: Auger samples taken continuously to water table Split-spoon samples taken every 5.0' below water table
62.5	10.0		Orange clay				
57.3	15.0		Tan, silty, sand				
52.5	20.0		Tan, medium to coarse sand				
47.5	25.0		Tan coarse sand w/pea gravel				
			Coarse sand and gravel				
40.0	32.5						Top of Rock
		C to E	Clay, black, limey fissile bedded compacted w/layers of limestone	100 / 32 / 100	1		Limestone layers: El. 40.0 to 39.4; El. 31.6 to 31.2; El. 29.0 to 28.6; El. 27.1 to 26.7
				94	2		Hardness Scale: A-Soft as mud; B-Penetrated by pencil; C-" " knife; D-Cut " "; E-Scratched by " "; F-Can't be " " "
24.3	48.2	E to Co	Calcareous sandstone, gray, w/zones of uncemented, clayey sand	100	3		
19.7	52.8						
16.7	55.8	C	Sand, greenish gray, clayey, sl/micaceous	100			
		D	Chalky limestone, gray, dense, w/a few fossil shells	100	4		
9.2	63.3	D	Chalky limestone, dense, gray, sandy, sl/fossiliferous	100	5		
4.2	68.3						
		B to E	Calcareous sandstone, gray, sl/fossiliferous w/some layers of uncemented clayey sand	100 / 40 / 56	6		
-7.3	79.8	C	Sandy clay, greenish gray, micaceous, w/some layers of calcareous sandstone	100	7		Calcareous sandstone layers: El. -13.3 to -13.7; El. -14.2 to -15.2
-15.2	87.7						
-18.3	90.8	C	Clayey sand	100	8		Bottom of Hole
			Plugged hole w/10 sacks of cement				

END FORM 1 JUN 57 1836 (TRANSLUCENT) (ER 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT Millers Ferry — HOLE NO. 458

DEPARTMENT OF THE ARMY — DRILLING LOG
DIVISION: Corps of Engineers — INSTALLATION: Mobile District
1- PROJECT: Millers Ferry LSD — SHEET 1 OF 1
2- LOCATION (coordinates or Station): Sta. 61+74, 23 ft. D.S. from BL
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (as shown on drawing title and file no.): 487
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 46.0
8- DEPTH DRILLED INTO ROCK: 25.5
9- TOTAL DEPTH OF HOLE: 71.5
10- SIZE AND TYPE OF BIT: 4x5½" B.D.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 9
15- ELEV. GROUND WATER: 56.6
16- DATE HOLE: STARTED 5/8/63, COMPLETED 5/13/63
17- ELEV. TOP OF HOLE: 79.4
18- TOTAL CORE RECOVERY FOR BORING (%): 89
19- SIGNATURE OF INSPECTOR: J. Norton

ELEVATION	DEPTH	HARD SCALE	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
			Sandy clay, brown				Dry samples taken in overburden. Samples discarded
74.4	5.0		Clayey sand, brown				
72.4	7.0		Sandy clay, brown				
68.9	10.5		Clayey sand, brown				
62.9	16.5		Silty clay, brown				
57.4	22.0		Silty sand, brown				
52.4	27.0						
49.6	29.8		Gravelly sand	89			Top of Rock
		C & E	Clay, black, micaceous, tightly consolidated, uncemented, with cemented chalky limestone zones	100	1		El. 49.6 to 49.6 Calc. sandstone; El. 43.1 to 42.1 Chalky limestone; El. 38.5 to 37.5 " Limestone; El. 36.8 to 35.6 " "
				100			El. 30.5 to 30.2 " "
				100	2		El. 28.6 to 28.1 " "
				100	3		El. 27.4 to 27.1 " "
							El. 25.7 to 23.1 " "
				80			El. 24.1 to 23.5 " "
				100	4		Hardness Scale: A-Soft as mud; B-Penetrate with pencil; C-" " " knife; D-Cut with "; E-Scratch " "; F-Can't " " "
21.7	57.7	E to C	Sandstone, calc, fossiliferous cemented with few uncemented zones	100			
18.1	61.3						
16.2	63.2	C	Sandstone, argillaceous, friable	100	5		El. 7.0 to 6.4 large fossils. Samples wrapped for laboratory tests
		D	Chalky limestone	100			
				100	6		El. 17.4 to 16.2; El. 16.2 to 14.9; El. 11.6 to 10.3; El. 8.8 to 7.5; El. 7.5 to 6.2; El. 3.3 to 1.9; El. 1.9 to 0.9
8.9	71.2						
		D	Chalky limestone, sandy fossiliferous	94			
3.3	76.1	E	Sandstone, calc, fossiliferous, cemented	100	7		
0.6	78.8	B & E	Sand with interbedded layers of calcareous sandstone	23			
-7.5	85.9	C & E	Sandstone, argillaceous, tightly consolidated, uncemented, w/two cemented calc. sandstone zones	100	8		
				100	9		
-16.0	96.0	B	Clayey sand, micaceous				Bottom of Hole
-17.3	96.7						15 bags cement pumped in hole

END FORM 1 JUN 57 1836 (TRANSLUCENT) (ER 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT Millers Ferry — HOLE NO. 487

DEPARTMENT OF THE ARMY — DRILLING LOG
DIVISION: Corps of Engineers — INSTALLATION: Mobile District
1- PROJECT: Millers Ferry LSD — SHEET 2 OF 2
2- LOCATION (coordinates or Station): Sta. 61+74, 23 ft. D.S. from BL
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (as shown on drawing title and file no.): 495
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 51.5
8- DEPTH DRILLED INTO ROCK: 61.2
9- TOTAL DEPTH OF HOLE: 102.7
10- SIZE AND TYPE OF BIT: 4x5½" Internal Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 8
15- ELEV. GROUND WATER: 59.2
16- DATE HOLE: STARTED 5/17/63, COMPLETED 5/17/63
17- ELEV. TOP OF HOLE: 73.2
18- TOTAL CORE RECOVERY FOR BORING (%): 92
19- SIGNATURE OF INSPECTOR: J. Norton

ELEVATION	DEPTH	HARD SCALE	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
-29.5	102.7	B	Clayey sand, loosely consolidated, uncemented			8	El. -27.7 to -28.1 Calcareous sandstone, Hard E; Bottom of Hole
			10 bags cement pumped into hole				

END FORM 1 JUN 57 1836 (TRANSLUCENT) (ER 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT Millers Ferry — HOLE NO. 495

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA

MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY AL A.
DESIGN MEMORANDUM NO. 10

LOGS OF TYPICAL BORINGS IN THE SPILLWAY AND LOCK AREAS

SH. REF. NO	TO ACCOMPANY DESIGN MEMORANDUM NO. 10 DATED 5 JULY 63	SIZE	FILE NO.
			DRAWING NO.
	SCALE AS SHOWN	DATE JULY 1963	SHEET

PLATE NO. 2

CORPS OF ENGINEERS

U. S. ARMY

DRILLING LOG — HOLE NO. 509

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Millers Ferry L&D
2- LOCATION (Coordinates or Station): Base Line Sta. 60 + 68 - 300' N.S.
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 509
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL [X] INCLINED [ ] — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 43.0
8- DEPTH DRILLED INTO ROCK: 69.2
9- TOTAL DEPTH OF HOLE: 112.2
10- SIZE AND TYPE OF BIT: 4x5½" B.D.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 10
15- ELEV. GROUND WATER: 60.2
16- DATE HOLE: STARTED 3/7/63, COMPLETED 3/13/63
17- ELEV. TOP OF HOLE: 77.2
18- TOTAL CORE RECOVERY FOR BORING (%): 95
19- SIGNATURE OF INSPECTOR: C. Canning

ELEVATION	DEPTH	Hard Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
76.2	1.0		Top Soil				Note: Auger samples taken continuously to water table; then split-spoon samples taken every 5.0' to top of rock
			Clay, orange				
63.2	14.0						
61.2	16.0		Clay, orange, sandy				Hardness Scale A-Soft as mud B-Penetrate by pencil C- " " knife D-Cut " " E-Scratched " " F-Can't be " " "
			Sand, medium to coarse, tan				
54.2	23.0		Sand & gravel, tan				
34.2	43.0						Top of Rock
		C & E	Clay, black, liney, fissile bedded w/interbedded layers of chalky & silty limestone	87			Limestone layers, Hardness E
				100	1		El. 30.1 to 28.1 " " "
				88			El. 24.1 to 23.1 " " "
				97	2		El. 22.3 to 21.0 " " "
							El. 20.2 to 19.7 " " "
							El. 17.1 to 16.7 " " "
							El. 15.7 to 15.3 " " "
							El. 13.8 to 13.4 " " "
				100			El. 12.3 to 11.9 " " "
							El. 11.0 to 10.5 " " "
9.8	67.4	C	Clay, gray, sandy, compacted	100	3		
7.6	69.6			100	4		
		E & C	Sandstone, calcareous, gray, w/interbedded layers of sand, argillaceous, Hardness C	96			
1.1	76.1		Limestone, gray, chalky, dense, contains some fossils		5		
				100			
		D		100			
-8.6	85.8		Limestone, gray, chalky, sandy, fossiliferous	100	6		
-12.5	89.7	D	Sandstone, calcareous, gray w/interbedded sand layers, Hardness B. Sl/fossiliferous				El. -12.5 to -14.9 Calc. sandstone, hard "E"
		E & B		74	7		
-20.5	97.7	C	See Page #2				

EMG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-3-1001) — PROJECT Millers Ferry — HOLE NO. 509

DRILLING LOG — HOLE NO. 528

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Millers Ferry
2- LOCATION (Coordinates or Station): Base Line Sta. 61 + 68 - 850' N.S.
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 528
5- NAME OF DRILLER: J. Miller
6- DIRECTION OF HOLE: VERTICAL [X] INCLINED [ ] — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 41.0
8- DEPTH DRILLED INTO ROCK: 69.6
9- TOTAL DEPTH OF HOLE: 110.6
10- SIZE AND TYPE OF BIT: 4x5½" B.D.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 9
15- ELEV. GROUND WATER: 59.3
16- DATE HOLE: STARTED 3/19/63, COMPLETED 3/25/63
17- ELEV. TOP OF HOLE: 74.3
18- TOTAL CORE RECOVERY FOR BORING (%): 92
19- SIGNATURE OF INSPECTOR: C. Canning

ELEVATION	DEPTH	Hard Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
73.3	1.0		Top Soil				Note: Auger samples taken every 5.0' to water table. No samples taken below
			Clay, orange, sl/sandy				
60.3	14.0						Hardness Scale A-Soft as mud B-Penetrated by pencil C- " " knife D-Cut " " E-Scratched " " F-Can't be " " "
			Sand, fine grading to coarse, tan				
54.3	20.0						
			Sand & gravel				Note: After encountering water table at El. 59.3 water rose to El. 61.3
33.3	41.0						Top of Rock
		C & E	Clay, black, liney, compact, fissile bedded w/interbedded layers of chalky and silty limestone, hardness E	100			Limestone Layers
				100	1		El. 33.3 to 32.0
							El. 23.9 to 23.2
				100			El. 21.8 to 20.8
				100			El. 19.8 to 18.9
					2		El. 14.8 to 14.3
				100			El. 12.9 to 12.3
					3		
				100			
				100			
-6.1	68.2			100	4		Layer of conglomerate from El. -4.4 to -5.6 consists of gravel size particles of silty limestone and coarse glauconitic sand w/a limey clay cementing material
		E & C	Sandstone, gray, calcareous w/interbedded layers of sand, argillaceous, micaceous, compact, hardness C	88			
					5		
-5.6	79.8		Chalky limestone, gray, dense	74			
				96	6		
-12.4	86.7	D					
-16.3	90.6	D	Chalky limestone, sandy, dense, fossiliferous, gray	100			El. -16.3 to -17.3 Calc. sandstone, Hard "E"
		E to B	Sandstone, calcareous, gray, fossiliferous w/interbedded layers of sand, hardness B		7		
-24.5	98.8		See Page #2	80			

EMG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-3-1001) — PROJECT Millers Ferry — HOLE NO. 528

DRILLING LOG — HOLE NO. 324

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Millers Ferry
2- LOCATION (Coordinates or Station): N760,410 E 531,569
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 324
5- NAME OF DRILLER: J. Downs
6- DIRECTION OF HOLE: VERTICAL [X] INCLINED [ ] — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 26.7
8- DEPTH DRILLED INTO ROCK: 104.9
9- TOTAL DEPTH OF HOLE: 131.6
10- SIZE AND TYPE OF BIT: 4x5½" Bottom Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 14
15- ELEV. GROUND WATER: 57.3
16- DATE HOLE: STARTED 12/12/62, COMPLETED 12/17/62
17- ELEV. TOP OF HOLE: 75.3
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19- SIGNATURE OF INSPECTOR: J. Morton & J. Bryan

ELEVATION	DEPTH	Hard Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
72.8	2.5		Sandy clay, brown				Dry samples taken in overburden. Samples discarded
71.8	3.5		Clayey sand, brown				
			Silty sand, brown				
63.8	11.5						
			Sand, brown				
52.8	22.5						
			Sand & gravel				
48.6	26.7			55			Top of Rock
		C & E	Clay, black, micaceous, tightly consolidated, uncemented, with cemented chalky limestone zones. (Depth 86.1 to 86.8 sandy & fossiliferous.)	100	1		El. 47.7-47.2 Chalky Limestone, Hardness "E"
							El. 45.1-44.7 " "
							El. 44.5-44.0 " "
				100	2		El. 43.6 to 43.3 " "
							El. 42.9-42.5 " "
							El. 37.8-36.9 " "
							El. 35.6-34.4 " "
							El. 34.3-34.0 " "
							El. 32.1-31.5 " "
				100	3		El. 27.5-27.0 " "
							El. 26.0-25.8 " "
							El. 25.3-25.0 " "
							El. 24.5 -23.8 " "
				100	4		El. 22.2-21.6 " "
							El. 18.2-17.9 " "
							El. 14.2-13.2 " "
							El. 8.3-7.2 " "
				100	5		El. 3.6-2.9 " "
							El. 2.0-0.9 " "
							El. -1.6 to -1.9 " "
							El. -3.4 to -3.9 " "
							El. -5.5 to -5.9 " "
				100	6		El. -7.8 to -8.3 " "
							El. -8.6 to -8.9 " "
							El. -10.3 to -10.8 " "
				100	7		
				100	8		
-11.5	86.8						El. -11.5 to -11.8 Transition from clay to calc. sandstone, Hard D-E
		E	Sandstone, calc., fossil., cemented	98	9		
-18.1	93.4						
		C & B	Sand, fossil.				
-22.5	97.8	D-E	Chalky Limestone	99	10		El. -21.8 to -22.5 is calc. sandstone, Hard E

EMG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-3-1001) — PROJECT Millers Ferry — HOLE NO. 324

DRILLING LOG — HOLE NO. 329

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Millers Ferry L&D
2- LOCATION (Coordinates or Station): N760,230 E531,475
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 329
5- NAME OF DRILLER: J. Downs
6- DIRECTION OF HOLE: VERTICAL [X] INCLINED [ ] — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 23.2
8- DEPTH DRILLED INTO ROCK: 98.2
9- TOTAL DEPTH OF HOLE: 121.4
10- SIZE AND TYPE OF BIT: 4x5½" B.D.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 13
15- ELEV. GROUND WATER: 57.0
16- DATE HOLE: STARTED 2/14/63, COMPLETED 2/20/63
17- ELEV. TOP OF HOLE: 71.0
18- TOTAL CORE RECOVERY FOR BORING (%): 93
19- SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	Hard Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
68.5	2.5		Sandy clay, brown				Dry samples taken of overburden, samples discarded
			Clayey sand, brown				
63.0	8.0		Silty sand, brown				
55.0	16.0		Sand & gravel				
47.8	23.2			0			Top of Rock
		C & E	Clay, black, micaceous, tightly consolidated, uncemented with cemented chalky limestone zones. (Bottom 1.5' sandy)	100	1		Chalky Limestone, Hardness E
							El. 44.9 to 44.5 " "
							El. 42.7 to 42.3 " "
							El. 39.9 to 39.3 " "
				100			El. 39.0 to 38.7 " "
							El. 38.0 to 37.8 " "
							El. 33.6 to 32.4 " "
				100	2		El. 30.8 to 30.3 " "
							El. 30.0 to 29.6 " "
							El. 28.3 to 27.8 " "
							El. 26.8 to 24.3 " "
				100	3		El. 23.7 to 23.3 " "
							El. 19.2 to 18.7 " "
							El. 17.6 to 17.2 " "
				100			El. 15.6 to 15.3 " "
					4		El. 13.3 to 12.3 " "
				100			El. 10.7 to 9.7 " "
							El. 3.6 to 2.6 " "
							El. -0.8 to -1.8 " "
							El. -2.7 to -3.3 " "
				100	5		El. -3.5 to -3.7 " "
							El. -5.1 to -5.3 " "
							El. -9.9 to -10.2 " "
				100	6		El. 10.7 to -11.2" "
							El. -12.3 to -12.7" "
				100			El. -13.0 to -13.3 " "
							El.-13.7 to -14.1 " "
				100	7		El. -15.0 to -15.2 " "
				100	8		Hardness Scale A-Soft as mud B-Penetrate with pencil C- " " knife D-Cut " " E-Scratch " " F-Can't " "
				100			
-16.7	87.7	E to C	Sandstone, calc. fossiliferous w/uncemented zones	100	9		
-20.9	91.9	C	Sandstone, argillaceous, tightly consolidated				
-23.7	94.7	B	Sand, calc., loosely consolidated	100	10		
-27.4	98.4			80			

EMG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-3-1001) — PROJECT Millers Ferry — HOLE NO. 329

DRILLING LOG — HOLE NO. 509 (Page 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Millers Ferry
2- LOCATION (Coordinates or Station): Base Line Sta. 60 + 68 - 300' D.S.
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 509
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL [X] INCLINED [ ] — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 43.0
8- DEPTH DRILLED INTO ROCK: 69.2
9- TOTAL DEPTH OF HOLE: 112.2
10- SIZE AND TYPE OF BIT: 4x5½" B.D.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 10
15- ELEV. GROUND WATER: 60.2
16- DATE HOLE: STARTED 3/7/63, COMPLETED 3/13/63
17- ELEV. TOP OF HOLE: 77.2
18- TOTAL CORE RECOVERY FOR BORING (%): 95
19- SIGNATURE OF INSPECTOR: C. Canning

ELEVATION	DEPTH	Hard Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
		C & E	Sand, greenish gray, argillaceous micaceous, w/interbedded layers of calcareous sandstone, hardness E	100			Sandstone Layers El. -25.2 to -25.8 El. -31.4 to -32.4
-32.4	109.6			100			
-35.0	112.2	B	Sand, clayey, greenish gray	100	9		
			Note: Cemented hole w/10 sacks of cement		10		Bottom of Hole

EMG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-3-1001) — PROJECT Millers Ferry — HOLE NO. 509

DRILLING LOG — HOLE NO. 528 (Page 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Millers Ferry
2- LOCATION (Coordinates or Station): Base Line Sta. 61 + 68 - 850' D.S.
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 528
5- NAME OF DRILLER: J. Miller
6- DIRECTION OF HOLE: VERTICAL [X] INCLINED [ ] — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 41.0
8- DEPTH DRILLED INTO ROCK: 69.6
9- TOTAL DEPTH OF HOLE: 110.6
10- SIZE AND TYPE OF BIT: 4x5½" B.D.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 9
15- ELEV. GROUND WATER: 59.3
16- DATE HOLE: STARTED 3/19/63, COMPLETED 3/25/63
17- ELEV. TOP OF HOLE: 74.3
18- TOTAL CORE RECOVERY FOR BORING (%): 92
19- SIGNATURE OF INSPECTOR: C. Canning

ELEVATION	DEPTH	Hard Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
		C & E	Sand, argillaceous, micaceous, gray w/interbedded sandstone layers, calc. gray, hardness E	98		8	
				100			
-35.6	109.2						
-36.3	110.0	E	Sand, clayey, gray, sl/micaceous	94		9	Bottom of Hole
			Hole cemented w/10 sacks of cement				Sandstone layers El. -26.8 to -27.2 El. -28.8 to -29.2 El. -32.6 to -33.6 El. -35.2 to -35.6

EMG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-3-1001) — PROJECT Millers Ferry — HOLE NO. 528

DRILLING LOG — HOLE NO. 324 (Page 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Millers Ferry L&D
2- LOCATION (Coordinates or Station): N 760,410 E531,569
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 324
5- NAME OF DRILLER: J. Downs
6- DIRECTION OF HOLE: VERTICAL [X] INCLINED [ ] — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 26.7
8- DEPTH DRILLED INTO ROCK: 104.9
9- TOTAL DEPTH OF HOLE: 131.6
10- SIZE AND TYPE OF BIT: 4x5½" Bottom Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 14
15- ELEV. GROUND WATER: 57.3
16- DATE HOLE: STARTED 12/12/62, COMPLETED 12/17/62
17- ELEV. TOP OF HOLE: 75.3
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19- SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	Hard Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
		D-E	Chalky limestone, becoming sandier & more fossil. toward base	99			
				100		11	
-33.5	108.8						
-34.9	110.2	E-D	Calcareous sandstone				
-35.9	111.2						
-38.5	113.8	E-D	Sandstone, calc., arg.	99		12	
-40.9	116.2	E-B	Calc. sandstone w/interbedded sand				
		B	Sand, fine to medium grn., fossiliferous	76			
						13	
-49.2	124.5						
-50.9	126.2	E	Sandstone, calc., arg.				
		C	Sand, compact, clayey	97		14	
-56.3	131.6						Bottom of Hole
			Plugged hole with 16 bags of cement				

EMG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-3-1001) — PROJECT Millers Ferry — HOLE NO. 324

DRILLING LOG — HOLE NO. 329 (Page 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Millers Ferry L&D
2- LOCATION (Coordinates or Station): N760,230 E531,475
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 329
5- NAME OF DRILLER: J. Downs
6- DIRECTION OF HOLE: VERTICAL [X] INCLINED [ ] — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 23.2
8- DEPTH DRILLED INTO ROCK: 98.2
9- TOTAL DEPTH OF HOLE: 121.4
10- SIZE AND TYPE OF BIT: 4x5½" B.D.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0, UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 13
15- ELEV. GROUND WATER: 57.0
16- DATE HOLE: STARTED 2/14/63, COMPLETED 2/20/63
17- ELEV. TOP OF HOLE: 71.0
18- TOTAL CORE RECOVERY FOR BORING (%): 93
19- SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	Hard Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
		D	Chalky limestone	100		11	El. -27.1 to -27.4 Hard calc. sandstone
-35.4	106.4						Large fossils
-39.4	110.4	D	Chalky limestone, sandy fossiliferous	100		12	El. -37.5 to -38.5 El. -43.9 to -45.4 Argillaceous sandstone, tightly consolidated
		E	Sandstone, calcareous, fossiliferous				
-42.4	113.4						
-43.9	114.9	E to C	Sandstone w/interbedded sand				El. -45.4 to -45.8 calc. sandstone
-45.4	116.4	C	Sandstone, argillaceous				
		B	Clayey sand, loosely consolidated	32		13	
-50.4	121.4						Bottom of Hole
			16 bags cement pumped into hole				

EMG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-3-1001) — PROJECT Millers Ferry — HOLE NO. 329

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

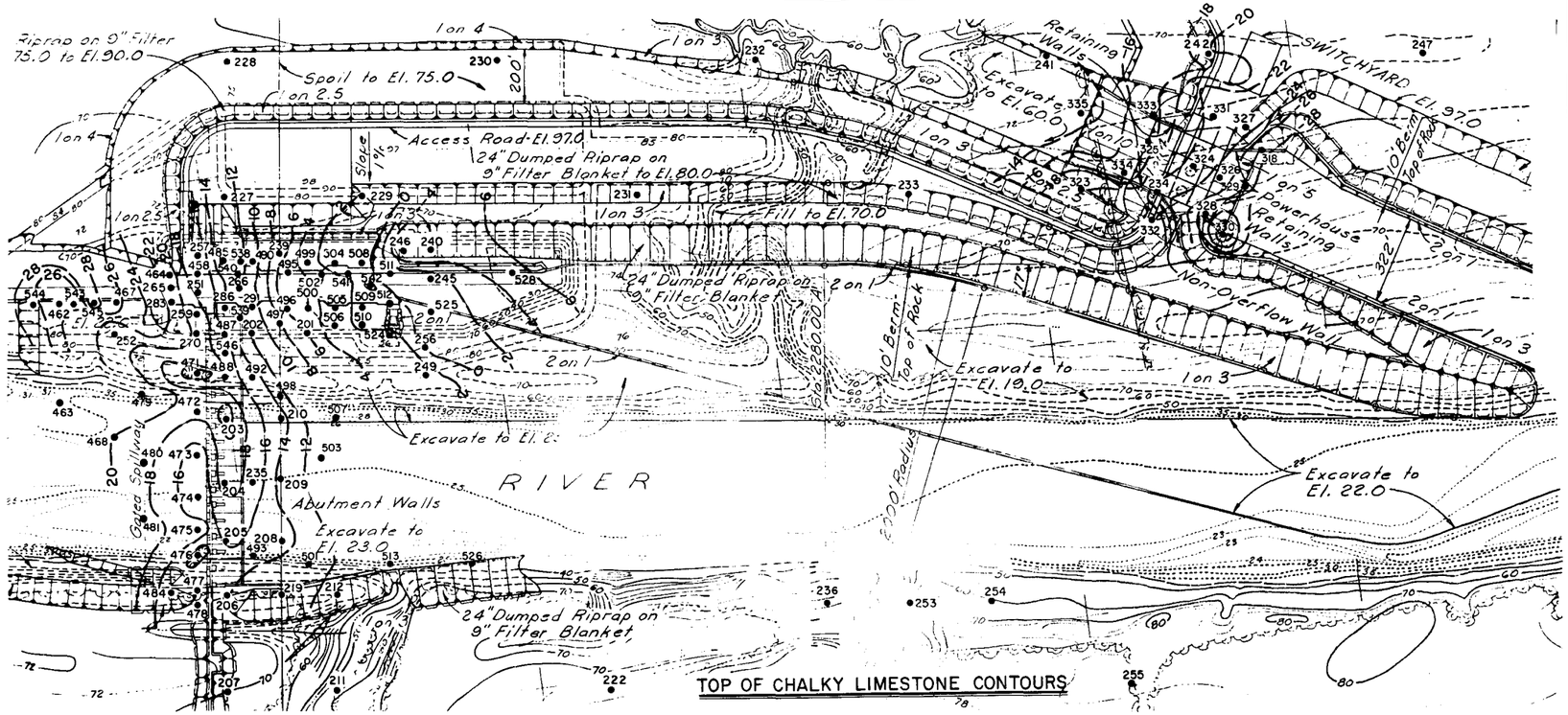
ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY ALA.
DESIGN MEMORANDUM NO. 10

LOGS OF TYPICAL BORINGS IN THE LOCK AND POWERHOUSE AREAS

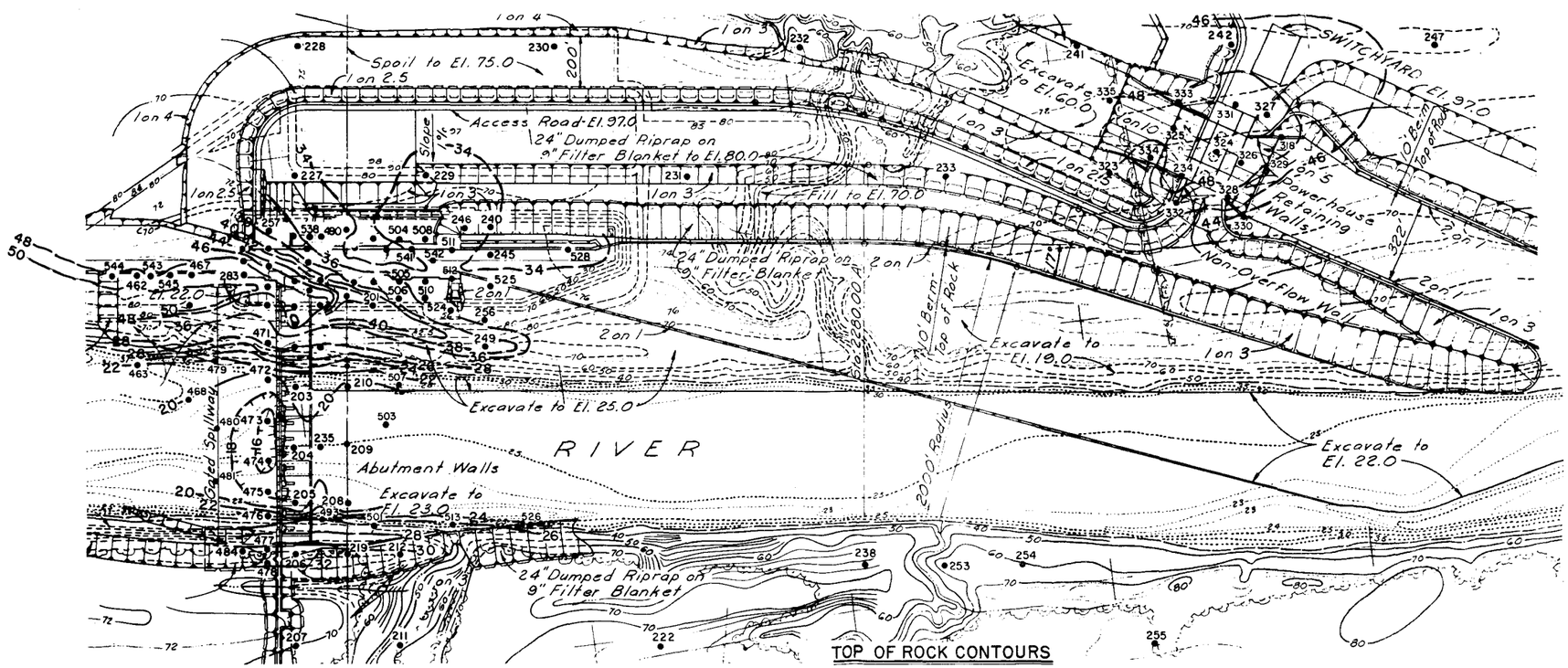
SH. REF. NO.	TO ACCOMPANY DESIGN MEMORANDUM NO. 10 DATED 31 JULY '63	SIZE	FILE NO.
			DRAWING NO.
	SCALE AS SHOWN	DATE JULY 1963	SHEET

PLATE NO. 3

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED



TOP OF CHALKY LIMESTONE CONTOURS



TOP OF ROCK CONTOURS

SCALE: 1" = 200'
200' 0 200 400 FT.

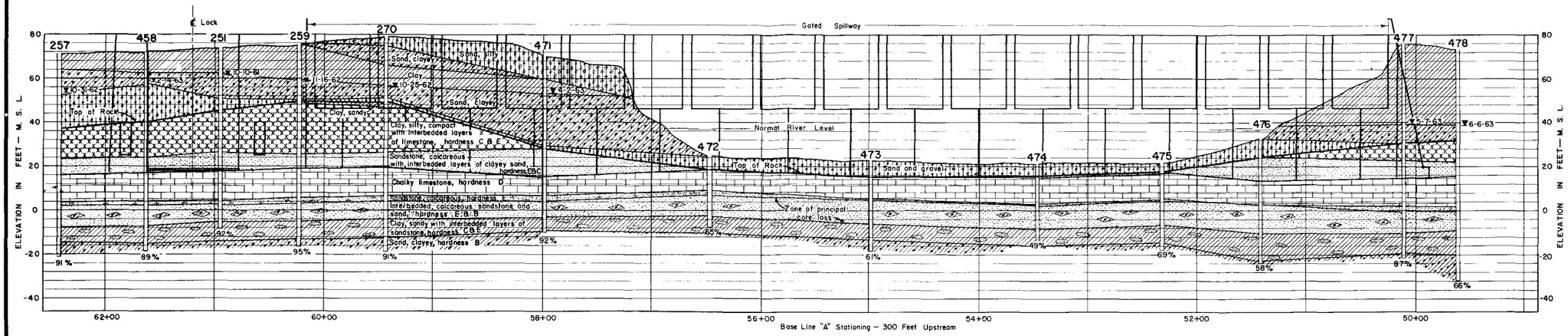
U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 10

TOP OF ROCK AND TOP OF CHALKY LIMESTONE CONTOURS

SH. REF. NO.	TO ACCOMPANY DESIGN MEMORANDUM NO 10 DATED 31 JULY 1963	SIZE	FILE NO.
			DRAWING NO.
	SCALE AS SHOWN	DATE: JULY 1963	SHEET

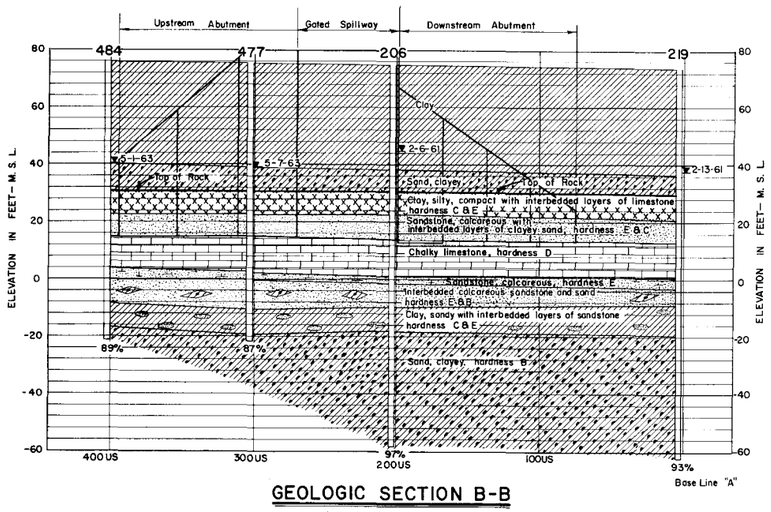
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED



GEOLOGIC SECTION A-A

(LOOKING DOWNSTREAM)

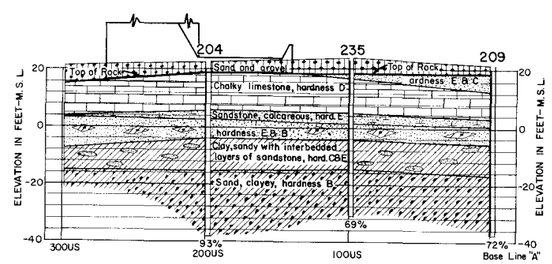
SCALE
VERTICAL: 1" = 20'
HORIZONTAL: 1" = 40'



GEOLOGIC SECTION B-B

(LOOKING EAST)

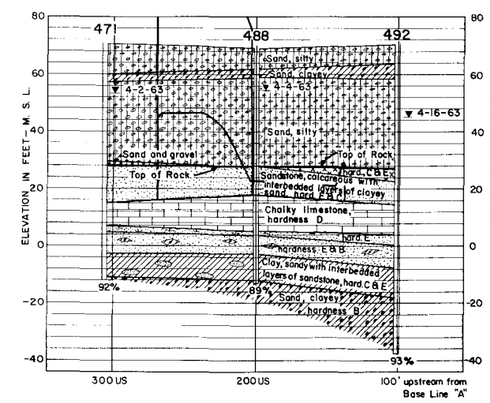
SCALE
VERTICAL: 1" = 20'
HORIZONTAL: 1" = 40'



GEOLOGIC SECTION C-C

(LOOKING EAST)

SCALE
VERTICAL: 1" = 20'
HORIZONTAL: 1" = 40'



GEOLOGIC SECTION D-D

(LOOKING EAST)

SCALE
VERTICAL: 1" = 20'
HORIZONTAL: 1" = 40'

LEGEND

Quaternary Alluvium
- Clay
- Sand, silty
- Sand & gravel
- Sand, clayey

Clayton Formation
- Clay, silty, compact with interbedded layers of limestone, hardness C & E
- Sandstone, calcareous with interbedded layers of clayey sand, hardness E & C

Prairie Bluff Formation
- Chalky limestone, hardness D

Ripley Formation
- Sandstone, calcareous, hardness E
- Interbedded calcareous sandstone and sand, hardness E & B
- Clay, sandy with interbedded layers of sandstone, hardness C & E
- Sand, clayey, hardness B

▼3-5-63 Elevation of ground water and date observed

96% Percent core recovery

Note: The overburden as shown is estimated and generalized from field classications made mostly from auger samples taken at 5 foot intervals.

Hardness Scale for Fresh Core
- A- Soft as mud
- B- Penetrated by pencil
- C- Penetrated by knife
- D- Cut by knife
- E- Scratched by knife

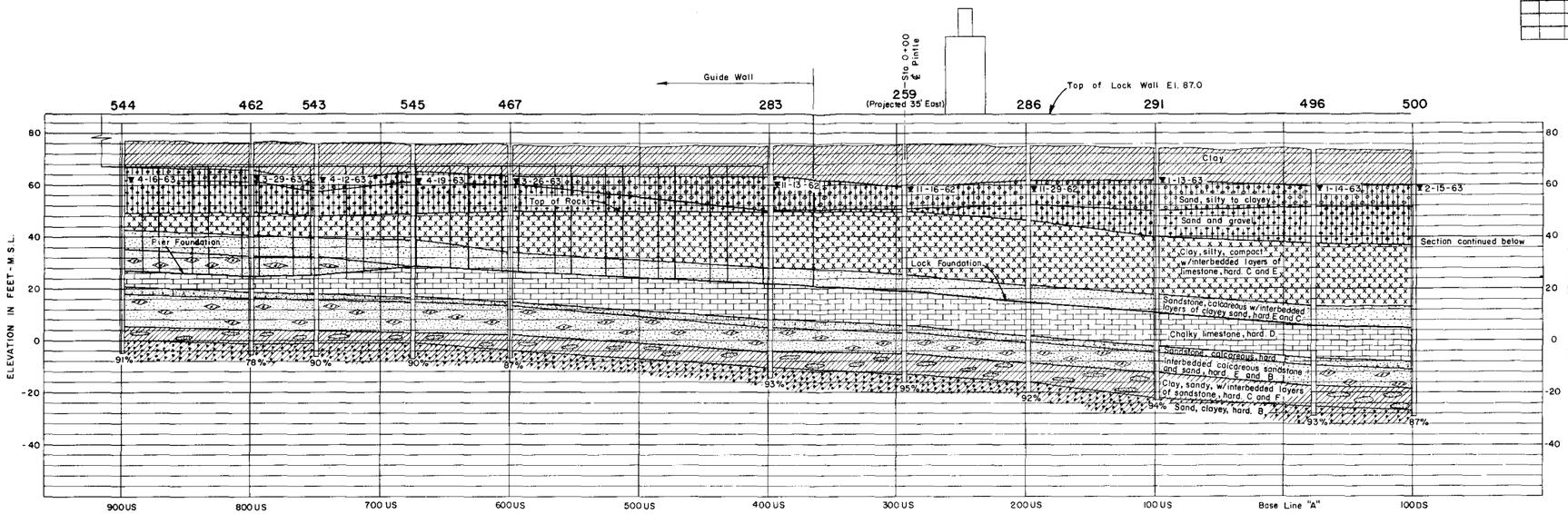
U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 10

GEOLOGIC SECTIONS A-A, B-B, C-C AND D-D

SH. REF. NO.	TO ACCOMPANY DESIGN MEMORANDUM NO. 10 DATED 31 JULY 1963	SIZE	FILE NO.
			DRAWING NO.
	SCALE AS SHOWN	DATE JULY 1963	SHEET

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED



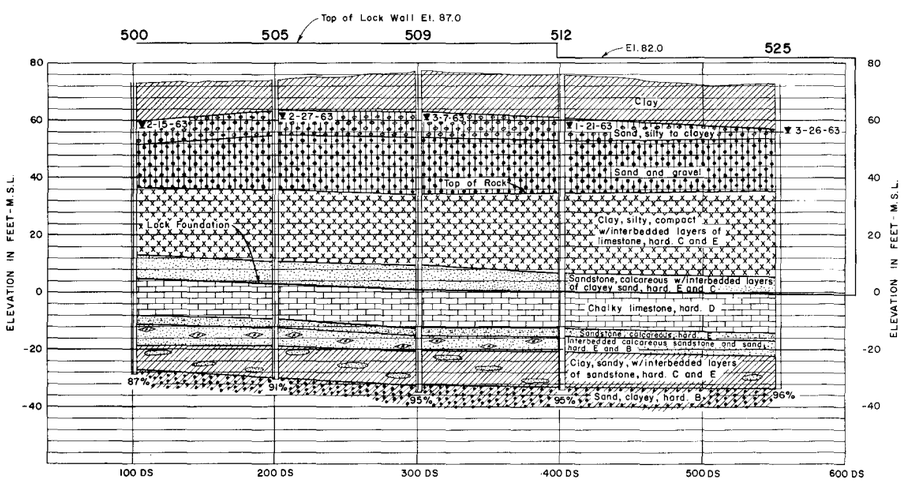
GEOLOGIC SECTION E-E

(LOOKING EAST)

SCALE

VERTICAL: 1" = 20'

HORIZONTAL: 1" = 40'



GEOLOGIC SECTION E-E (CONTINUED)

(LOOKING EAST)

LEGEND

Quaternary Alluvium		Clay
		Sand, clayey
		Sand, silty to clayey
		Sand and gravel
Clayton Formation		Clay, silty, compact with interbedded layers of limestone, hardness C and E
		Sandstone, calcareous with interbedded layers of clayey sand, hardness C and E
Prairie Bluff Formation		Chalky limestone, hardness D
Ripley Formation		Sandstone, calcareous, hardness E
		Interbedded calcareous sandstone and sand, hardness B and E
		Clay, sandy with interbedded layers of sandstone, hardness C and E
		Sand, clayey, hardness B

Hardness Scale For Fresh Core

A - Soft as mud

B - Penetrated by pencil

C - Penetrated by knife

D - Cut by knife

E - Scratched by knife

▼ 2-15-63 Elevation of ground water and date observed

90 % Percent core recovery

NOTE: The overburden as shown is estimated and generalized from field classifications made mostly from auger samples taken at 5 foot intervals.

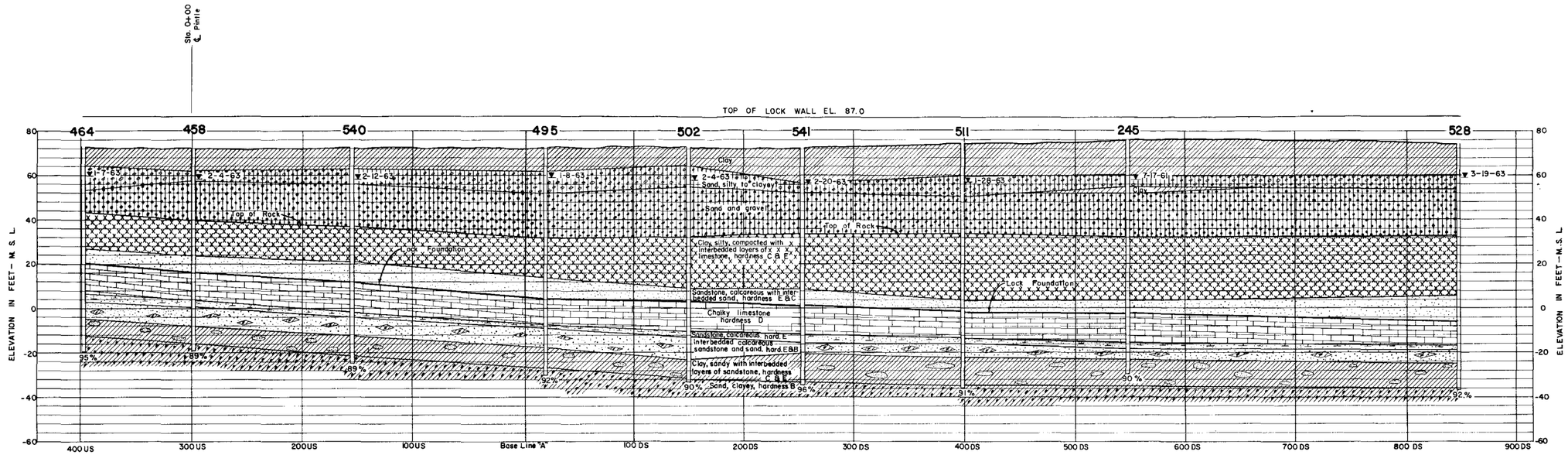
U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 10

GEOLOGIC SECTION E-E

SH. REF. NO	TO ACCOMPANY DESIGN MEMORANDUM NO 10 DATED 31 JULY 1963	SIZE	FILE NO
			DRAWING NO.
	SCALE	DATE JULY 1963	SHEET

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED



GEOLOGIC SECTION F-F

(LOOKING EAST)

SCALE

VERTICAL: 1" = 20'

20 0 20 40 FT.

HORIZONTAL: 1" = 40'

40 0 40 80 FT.

LEGEND

Quaternary Alluvium	Clay
	Sand, clayey
	Sand, silty to clayey
	Sand and gravel
Clayton Formation	Clay, silty, compact with interbedded layers of limestone, hardness C & E.
	Sandstone, calcareous with interbedded layers of clayey sand, hardness C & E
Prairie Bluff Formation	Chalky limestone, hardness D
Ripley Formation	Sandstone, calcareous, hardness E
	Interbedded calcareous sandstone and sand, hardness B & E
	Clay, sandy with interbedded layers of sandstone, hardness C & E
	Sand, clayey

4-16-63 Elevation of ground water and date observed

90 % Percent core recovery

Hardness Scale For Fresh Core

A - Soft as mud

B - Penetrated by pencil

C - Penetrated by knife

D - Cut by knife

E - Scratched by knife

NOTE: The overburden as shown is estimated and generalized from field classifications made mostly from auger samples taken at 5 foot intervals.

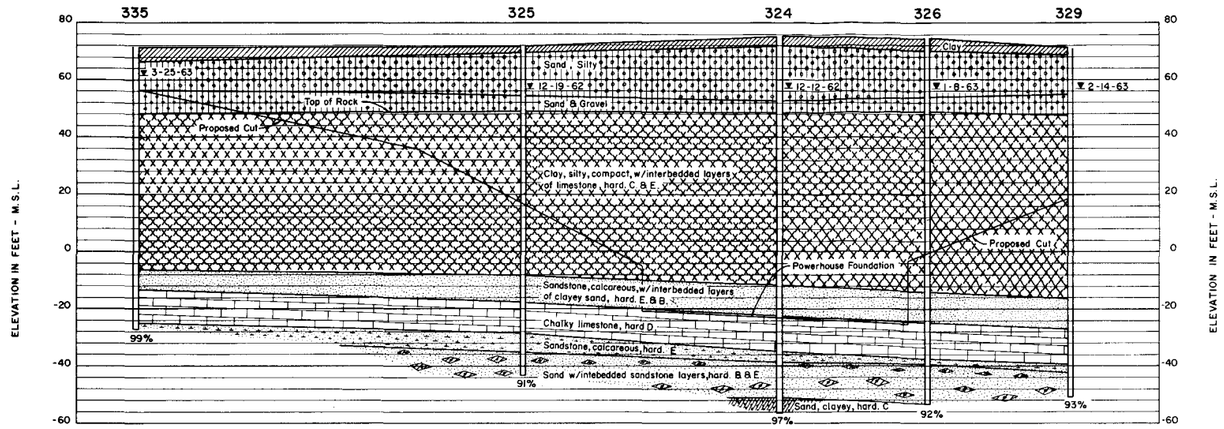
U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 10

GEOLOGIC SECTION F-F

SH. REF. NO.	TO ACCOMPANY DESIGN MEMORANDUM NO. 10 DATED 31 JULY 1963	SIZE	FILE NO.
			DRAWING NO.
	SCALE	DATE JULY 1963	SHEET

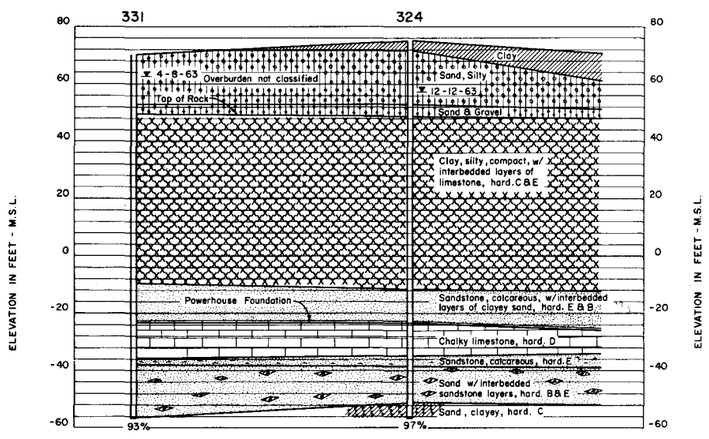
REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED



GEOLOGIC SECTION G-G

(LOOKING EAST)

SCALE:
VERTICAL: 1" = 20'
20' 0 20 40 FT.
HORIZONTAL: 1" = 40'
40' 0 40 80 FT.



GEOLOGIC SECTION H-H

(LOOKING DOWNSTREAM)

SCALE:
VERTICAL: 1" = 20'
20' 0 20 40 FT.
HORIZONTAL: 1" = 40'
40' 0 40 80 FT.

LEGEND

Quaternary Alluvium		Clay
		Sand, Silty
		Sand & Gravel
Clayton Formation		Clay, silty, compact, w/ interbedded layers of limestone, hard. C & E
		Sandstone, calcareous, w/interbedded layers of clayey sand, hard. E & B
Prairie Bluff Formation		Chalkey limestone, hard. D
Ripley Formation		Sandstone, calcareous, hard. E
		Sand w/interbedded sandstone layers, hard. B & E
		Sand, clayey, hard. C

HARDNESS SCALE FOR FRESH CORE
- A – Soft as mud
- B – Penetrated by pencil
- C – Penetrated by knife
- D – Cut by knife
- E – Scratched by knife

▼ 2-1-63 Elevations of ground water and date observed

96% Percent core recovery

NOTE: The overburden as shown is estimated and generalized from field classifications made mostly from auger samples taken at 5 foot intervals.

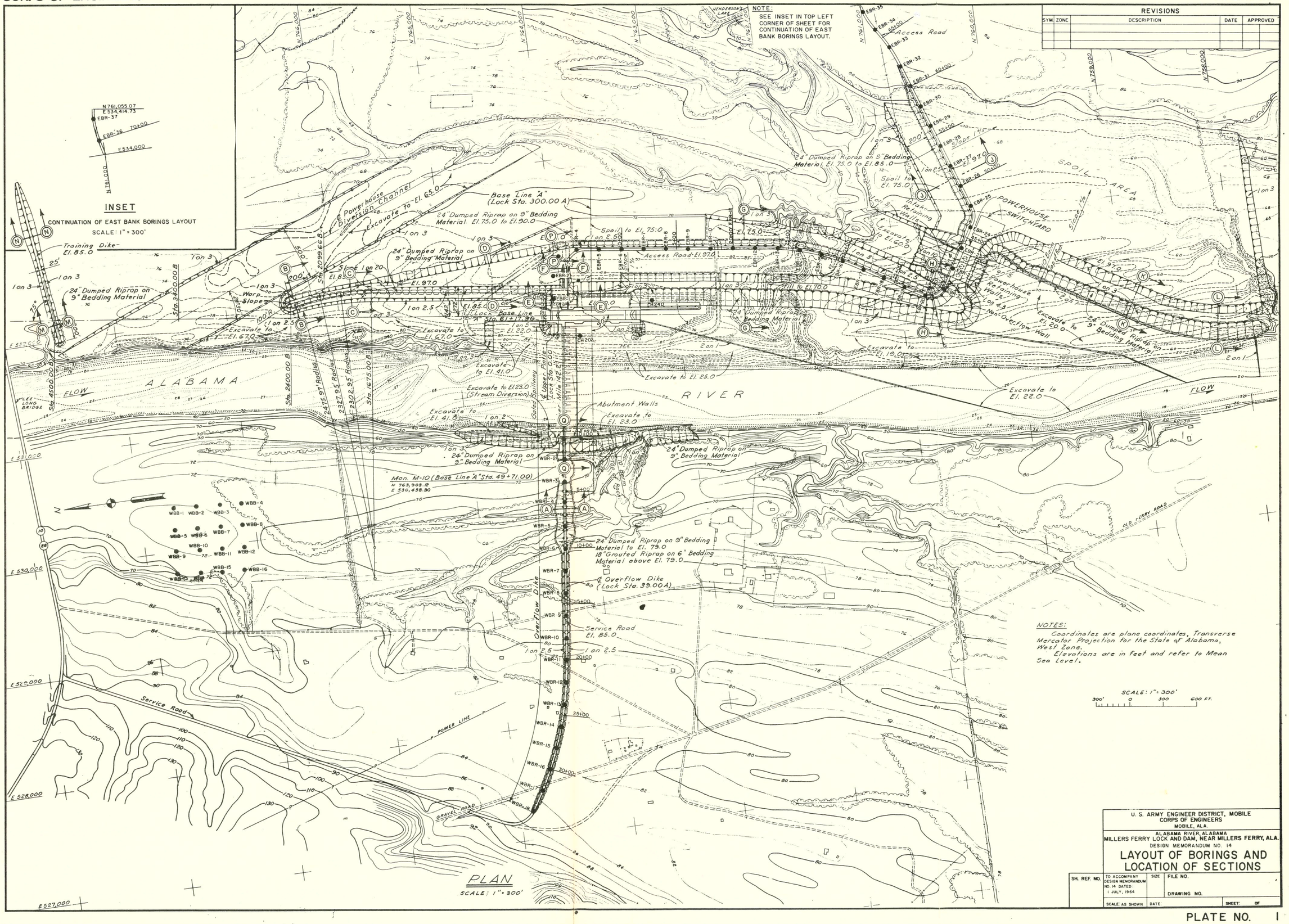
U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 10

GEOLOGIC SECTIONS G-G & H-H

SH. REF. NO.	TO ACCOMPANY DESIGN MEMORANDUM NO. 10 DATED: 31 JULY 1963	SIZE	FILE NO.
			DRAWING NO.
	SCALE:	DATE: JULY 1963	SHEET

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED



U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 14

LAYOUT OF BORINGS AND LOCATION OF SECTIONS

SH. REF. NO.	TO ACCOMPANY DESIGN MEMORANDUM NO. 14 DATED 1 JULY, 1964	SIZE	FILE NO.
	SCALE: AS SHOWN	DATE:	DRAWING NO. / SHEET: OF

UNIFIED SOIL CLASSIFICATION
(Including Identification and Description)

1	2			3	4	5	6	7		
MAJOR DIVISIONS				GROUP SYMBOLS	SYMBOL HATCHING	SYMBOL COLOR	TYPICAL NAMES	FIELD IDENTIFICATION PROCEDURES (Excluding particles larger than 3 inches and basing fractions on estimated weights)		
Coarse-grained Soils: More than half of material is larger than No. 200 sieve size.	GRAVELS: More than half of coarse fraction is larger than No. 4 sieve size. (For visual classification, the 1/4-in. size may be used as equivalent to the No. 4 sieve size)	Clean Gravels (Little or no fines)		GW		RED	Well-graded gravels, gravel-sand mixtures, little or no fines.	Wide range in grain sizes and substantial amounts of all intermediate particle sizes.		
				GP			Poorly-graded gravels, gravel-sand mixtures, little or no fines.	Predominantly one size or a range of sizes with some intermediate sizes missing.		
		Gravels with Fines (Appreciable amount of fines)		GM		YELLOW	Silty gravels, gravel-sand-silt mixtures.	Nonplastic fines or fines with low plasticity (for identification procedures see ML below).		
				GC			Clayey gravels, gravel-sand-clay mixtures.	Plastic fines (for identification procedures see CL below).		
	SANDS: More than half of coarse fraction is smaller than No. 4 sieve size	Clean Sands (Little or no fines)		SW		RED	Well-graded sands, gravelly sands, little or no fines.	Wide range in grain size and substantial amounts of all intermediate particle sizes.		
				SP			Poorly-graded sands, gravelly sands, little or no fines.	Predominantly one size or a range of sizes with some intermediate sizes missing.		
		Sands with Fines (Appreciable amount of fines)		SM		YELLOW	Silty sands, sand-silt mixtures.	Nonplastic fines or fines with low plasticity (for identification procedures see ML below).		
				SC			Clayey sands, sand-clay mixtures.	Plastic fines (for identification procedures see CL below).		
Fine-grained Soils: More than half of material is smaller than No. 200 sieve size. The No. 200 sieve is about the smallest particle visible to the naked eye.								IDENTIFICATION PROCEDURES On Fraction Smaller than No. 40 Sieve Size		
								Dry Strength (Crushing characteristics)	Dilatancy (Reaction to shaking)	Toughness (Consistency near PL)
	SILTS AND CLAYS	Liquid limits less than 50		ML		GREEN	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	None to slight	Quick to slow	None
				CL			Inorganic clays of low to medium plasticity; gravelly clays, sandy clays, silty clays, lean clays.	Medium to high	None to very slow	Medium
				OL			Organic silts and organic silty clays of low plasticity.	Slight to medium	Slow	Slight
	SILTS AND CLAYS	Liquid limits greater than 50		MH		BLUE	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	Slight to medium	Slow to none	Slight to medium
				CH			Inorganic clays of high plasticity, fat clays.	High to very high	None	High
				OH			Organic clays of medium to high plasticity, organic silts.	Medium to high	None to very slow	Slight to medium
HIGHLY ORGANIC SOILS				Pt		ORANGE	Peat and other highly organic soils.	Readily indentified by color, odor, spongy feel and frequently by fibrous texture.		

NOTES

Ground-water depths shown on the boring logs represent ground-water surfaces encountered on the dates shown. Absence of water surface data on certain borings implies that no ground-water data is available, but does not necessarily mean that ground-water will not be encountered at the locations or within the vertical reaches of these borings.

While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, local minor variations in characteristics of the subsurface materials of the region are anticipated and, if encountered, such variations will not be considered as differing materially from the description shown with the logs.

Soils are classified in accordance with the Unified Soil Classification System, Military Standard 619A, dated 20 March 1962.

Driving resistances are shown graphically. Blows per foot are determined with a standard split spoon sampler ($1\frac{3}{8}$" I.D., 2" O.D.) and a 140 lb. driving hammer with a 30" drop.

▽ Ground-water depths and dates observed.

N.S. = No Sample

F.W. = Free Water

REVISION	DATE	DESCRIPTION	BY	BY	BY

CORPS OF ENGINEERS, U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
MOBILE, ALA.

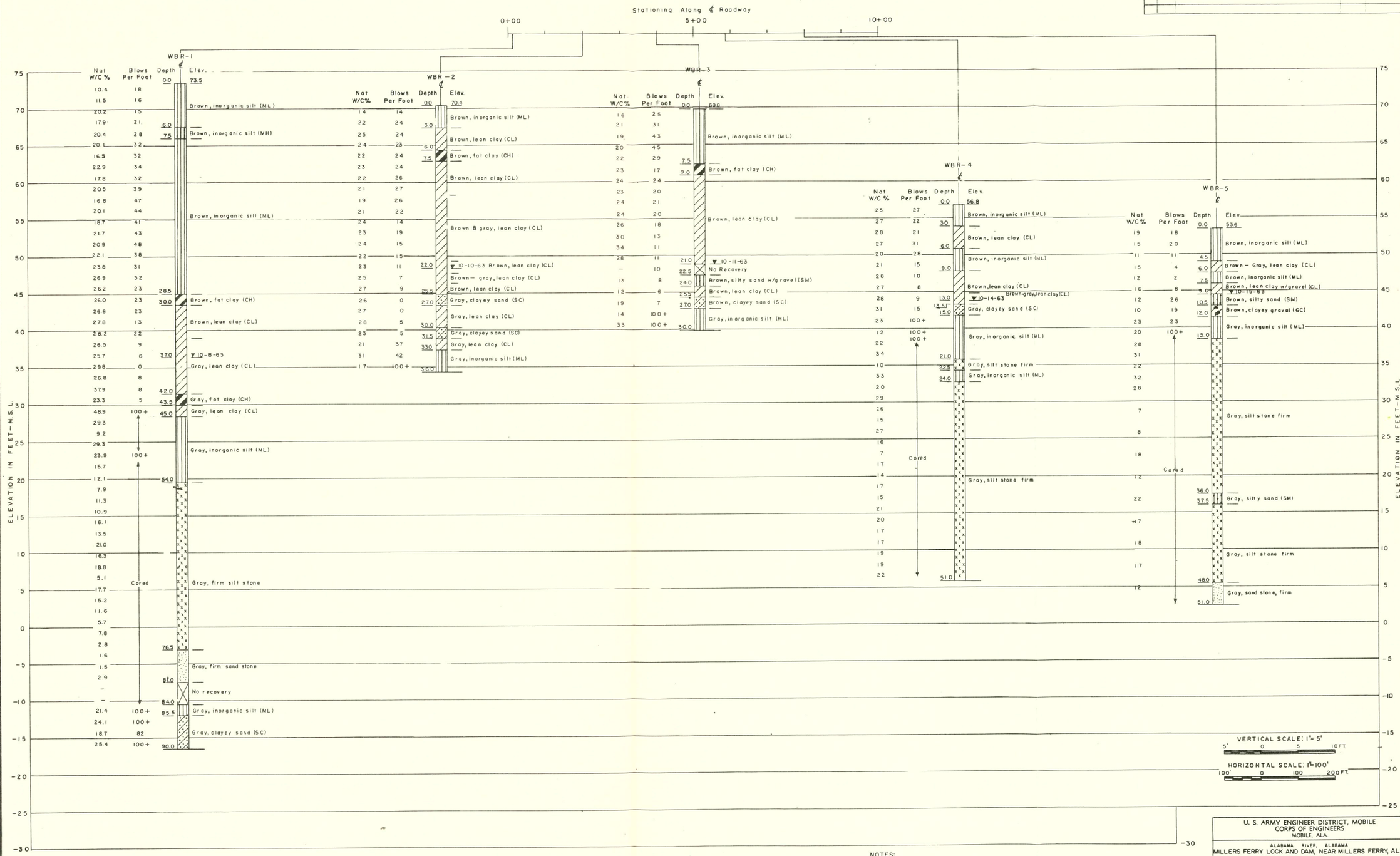
ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 14

SOIL LEGEND

DRAWN BY: W. W.
TRACED BY: H. N. B.
CHECKED BY: M. J. A.
SUBMITTED BY:
APPROVED:
APPROVED: CHIEF, ENGINEERING DIVISION
DATE: JULY 1964
APPROVED:
DATE:
SCALE:
FILE NO.
SPEC. NO.
TO ACCOMPANY DESIGN MEMORANDUM NO. 14 DATED 1 JULY 1964

CORPS OF ENGINEERS | U. S. ARMY

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED



NOTES:

See Plate No. 1 For Layout of Borings.
See Plate No. 2 For Legend and Notes.

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

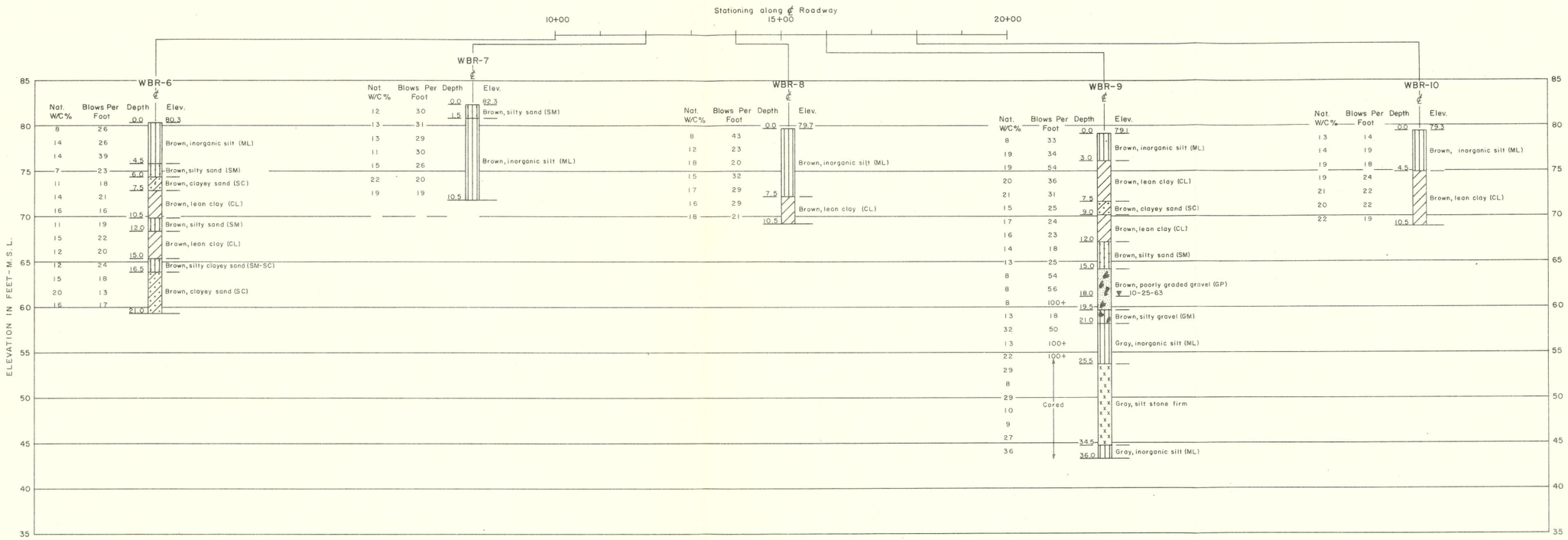
ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 14

RIGHT BANK-OVERFLOW EARTH DIKE
BORING PROFILE

SH. REF. NO.	TO ACCOMPANY DESIGN MEMORANDUM NO. 14 DATED 1 JULY, 1964	SIZE	FILE NO.
			DRAWING NO.
SCALE AS SHOWN	DATE		SHEET

PLATE NO. 3

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED



VERTICAL SCALE: 1" = 5'

5' 0 5 10 FT.

HORIZONTAL SCALE: 1" = 100'

100' 0 100 200 FT.

NOTES:

See Plate No. 1 for Layout of Borings.
See Plate No. 2 for Legend and Notes.

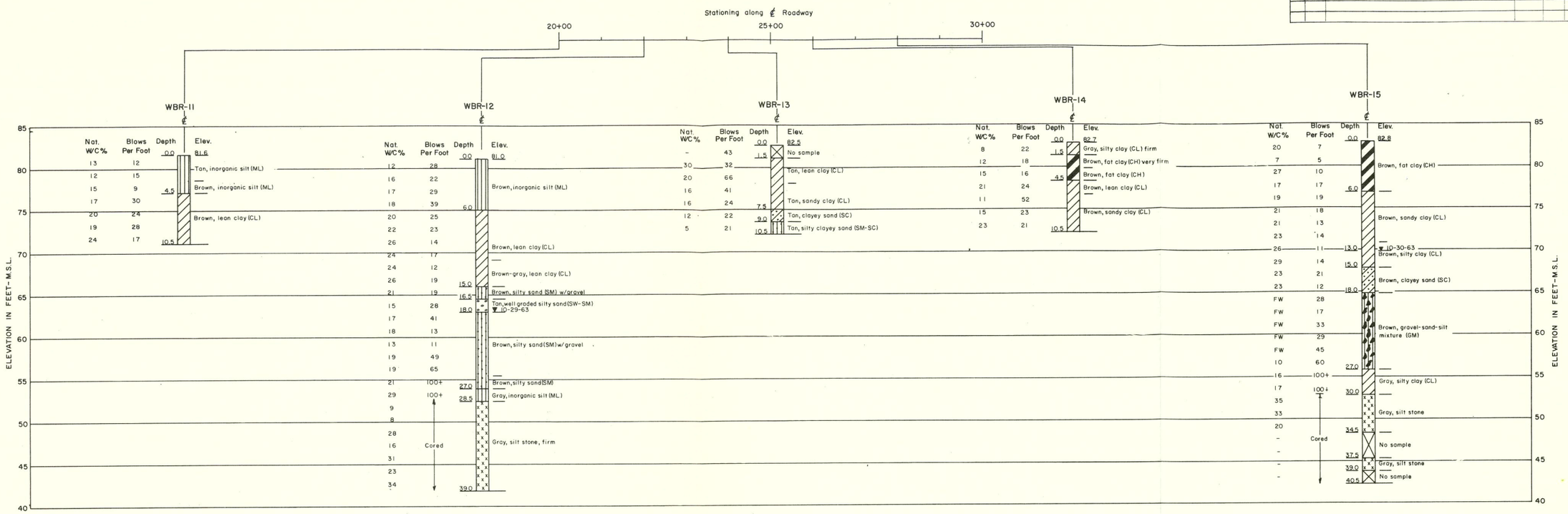
U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

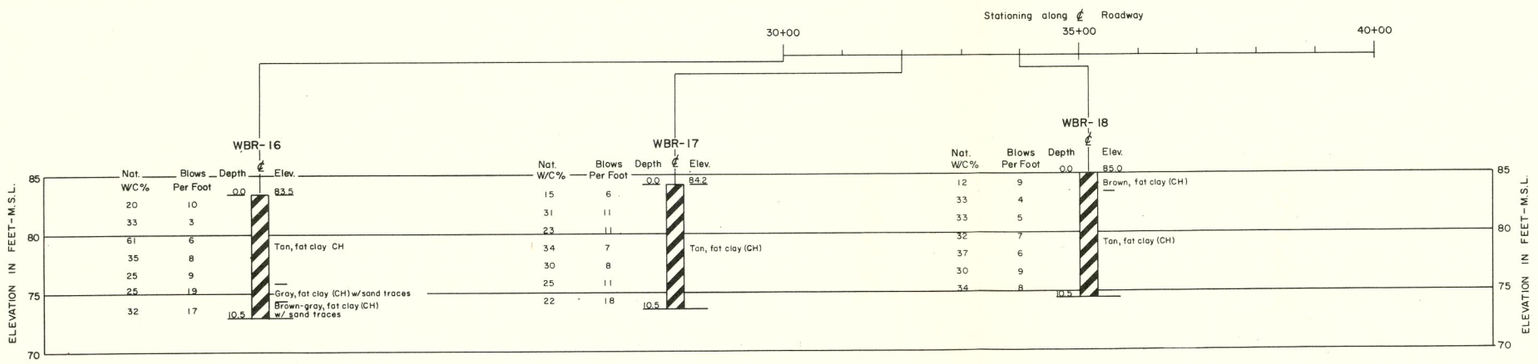
ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 14

RIGHT BANK-OVERFLOW EARTH DIKE
BORING PROFILE

SH. REF. NO.	TO ACCOMPANY DESIGN MEMORANDUM NO. 14 DATED: 1 JULY 1964	SIZE	FILE NO.
			DRAWING NO.
	SCALE AS SHOWN	DATE	SHEET

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED





VERTICAL SCALE: 1" = 5'

5' 0 5 10 FT.

HORIZONTAL SCALE: 1" = 100'

100' 0 100 200 FT.

NOTES:

See Plate No. 1 for Layout of Borings.
See Plate No. 2 for Legend and Notes.

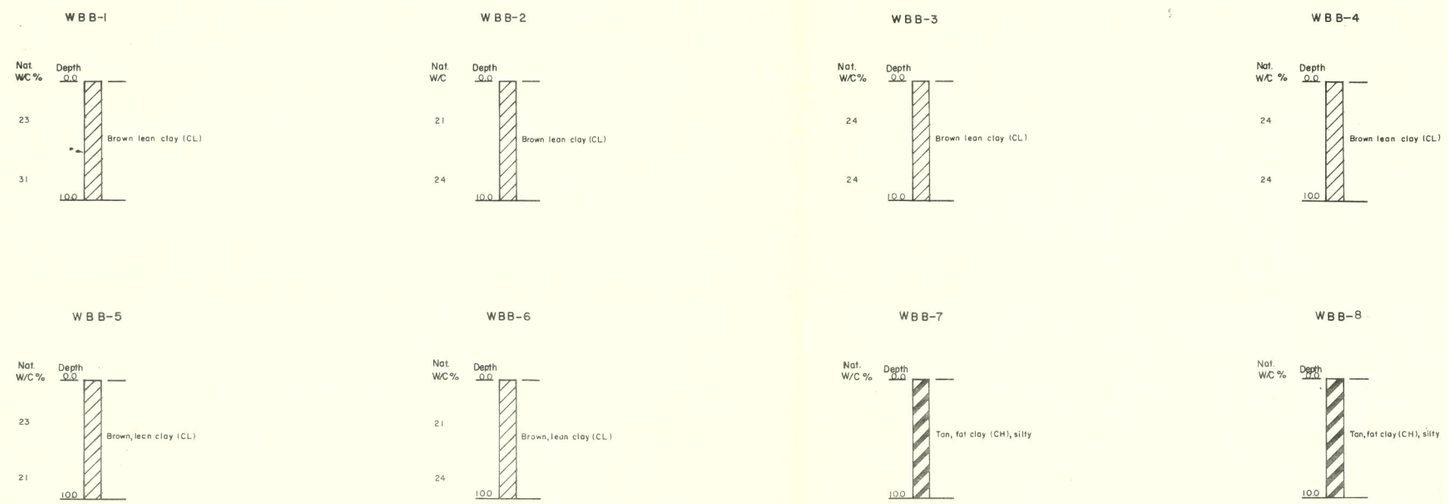
U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

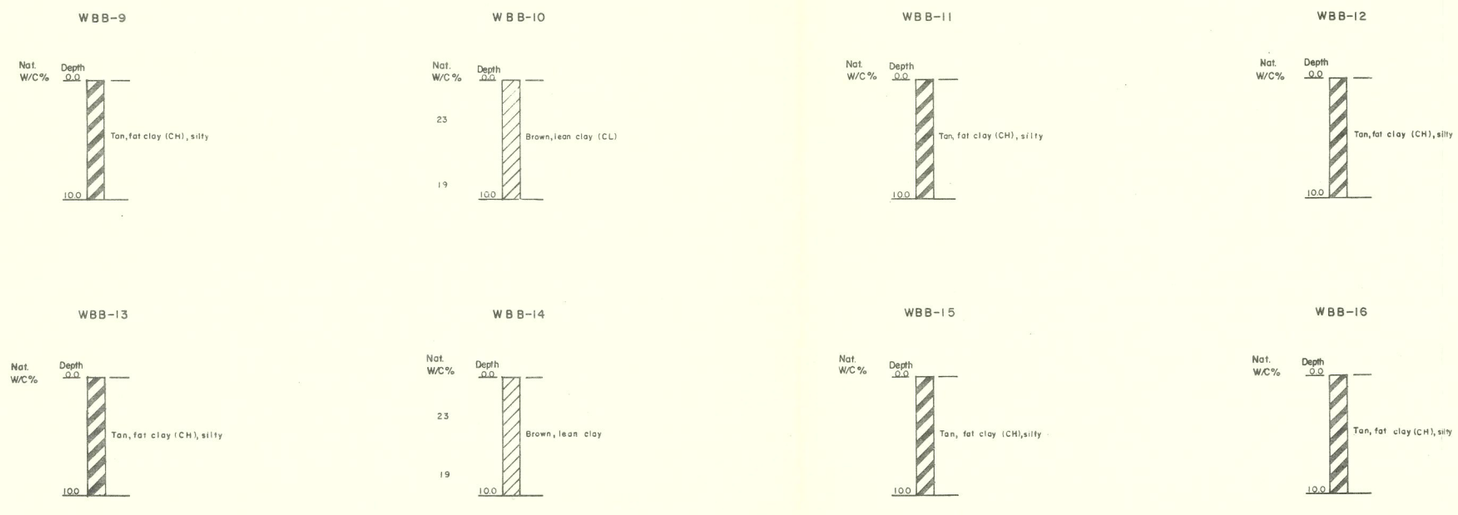
ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM, NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 14

RIGHT BANK-OVERFLOW EARTH DIKE BORING PROFILE

SH. REF. NO. | TO ACCOMPANY DESIGN MEMORANDUM NO. 14 DATED 1 JULY 1964 | SIZE | FILE NO. | DRAWING NO. | SCALE AS SHOWN | DATE | SHEET

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED





SCALE: 1" = 5'

5' 0 5 10 FT.

NOTES:

See Plate No. 1 for Layout of Borings.
See Plate No. 2 for Legend and Notes.

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

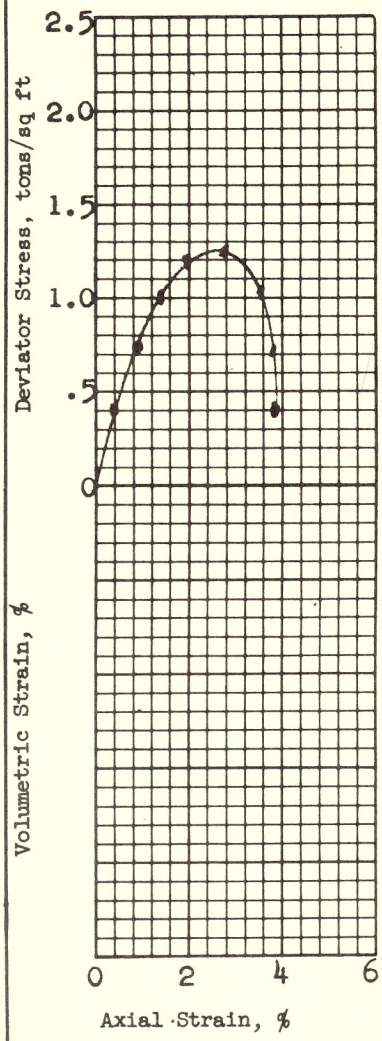
ALABAMA RIVER, ALABAMA
MILLERS FERRY LOCK AND DAM NEAR MILLERS FERRY, ALA.
DESIGN MEMORANDUM NO. 14
RIGHT BANK BORROW AREA

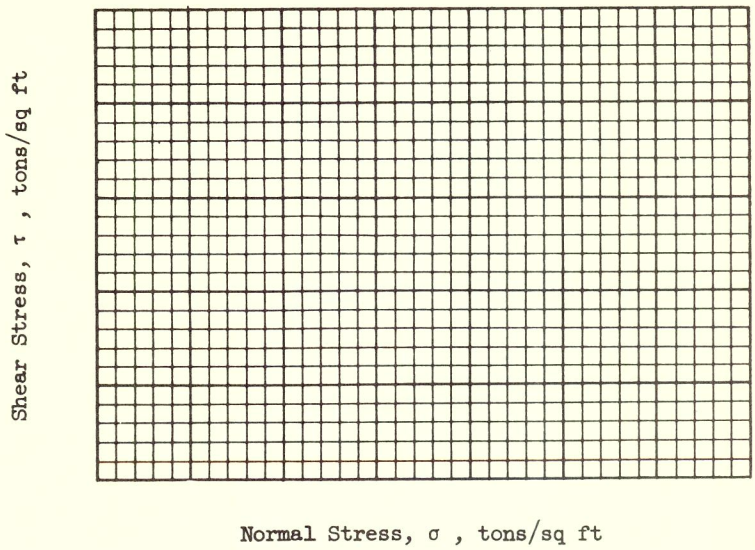
LOGS OF BORINGS

SH. REF. NO.	TO ACCOMPANY DESIGN MEMORANDUM NO. 14 DATED: 1 JULY 1964	SIZE	FILE NO.
			DRAWING NO.
	SCALE AS SHOWN	DATE:	SHEET

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA

Reqn. No. 44-64-F$M
W. O. No. 2394





Test No.			1			
Initial	Water content	w_o	22.5 %	%	%	%
	Void ratio	e_o	.718			
	Saturation	S_o	84.6 %	%	%	%
	Dry density lb/cu ft	γ_d	97.8			
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	22.4 %	%	%	%
	Void ratio	e_f	.718			
Major principal stress, tons/sq ft		σ_1	1.25			
Minor principal stress, tons/sq ft		σ_3	0.0			
Time to failure, min			3.0			
Initial diameter, cm			7.30			
Initial height, H_o, cm			15.96			

Shear Values

ϕ = -- °

tan ϕ = --

c = 0.62 tons/sq ft

Type Test UC
Method of Saturation N/A

☐ Controlled Stress ☒ Controlled Strain

Type of specimen Undisturbed Rate of strain 0.97 % ~~xx~~./min

Classification Tan inorganic silt, high liquid limit (MH) G = 2.69

LL 60 PL 33 PI 27 D_{10} ---

Remarks See gradation curve on ENG Form 2087.

Project MILLERS FERRY, MOBILE DISTRICT
Lab. No. 202/376
Area West Bank Road
Boring No. WBR-3 Sample No. 2
Depth ~~Elev~~ 5.0' - 7.0' Date 2 June 1964

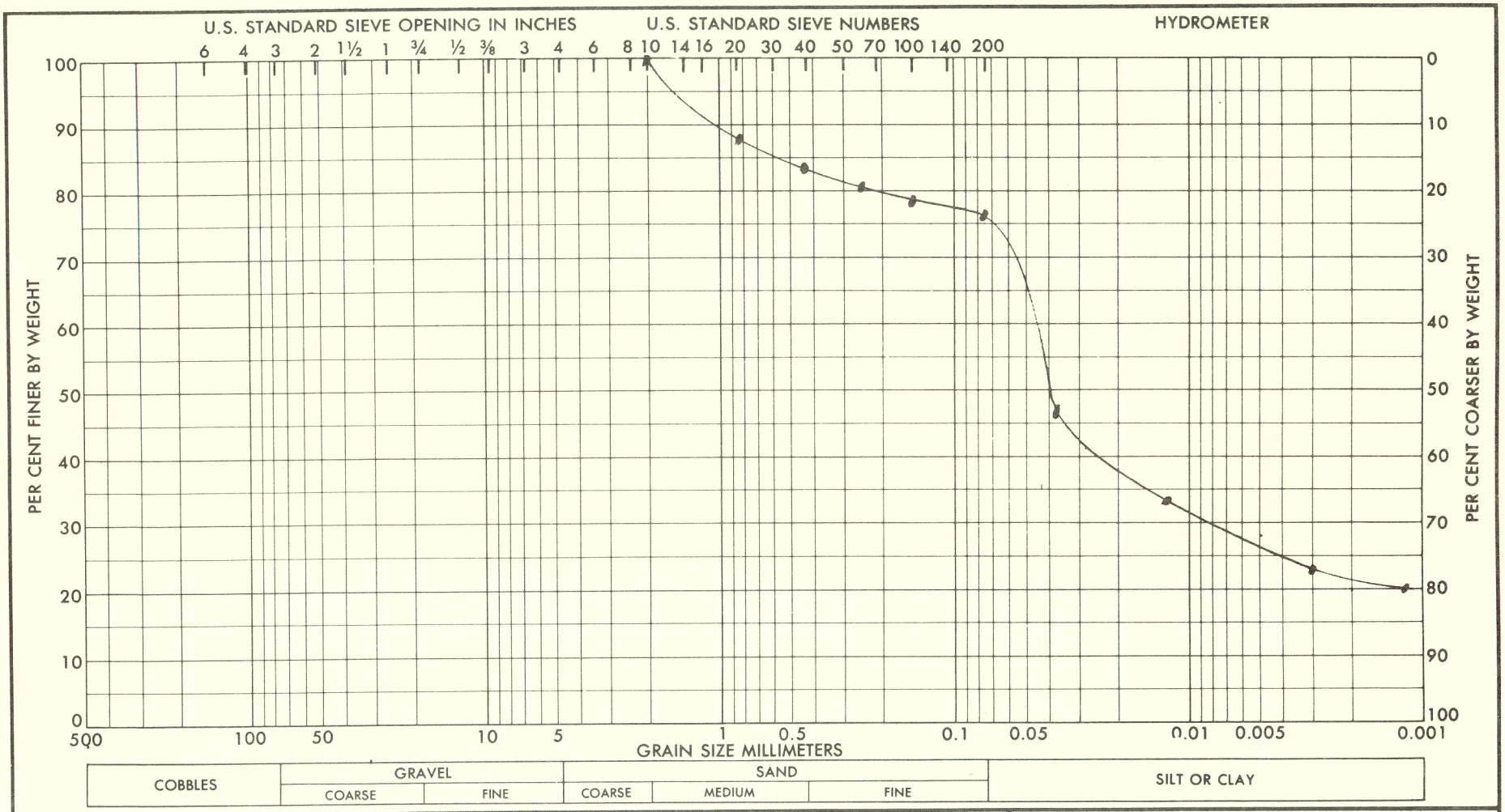
TRIAXIAL COMPRESSION TEST REPORT

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

CHART NO. 47

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA

Reqn. No. 44-64-F$M
W. O. No. 2394



SAMPLE NO.	~~XXXXX~~R DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
2	5.0' - 7.0'	Tan inorganic silt, high liquid limit (MH)	22.4	60	33	27

GRADATION CURVES

PROJECT MILLERS FERRY, MOBILE DISTRICT
Lab. No. 202/376*
AREA West Bank Road
BORING NO. WBR-3
DATE 2 June 1964

CHART NO. 48

ENG FORM 2087
1 MAY 63

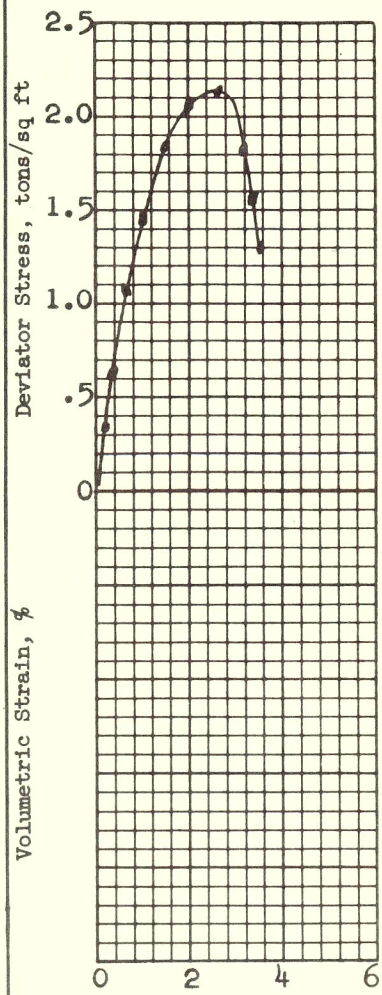
REPLACES WES FORM NO. 1241, SEP 1962, WHICH IS OBSOLETE.

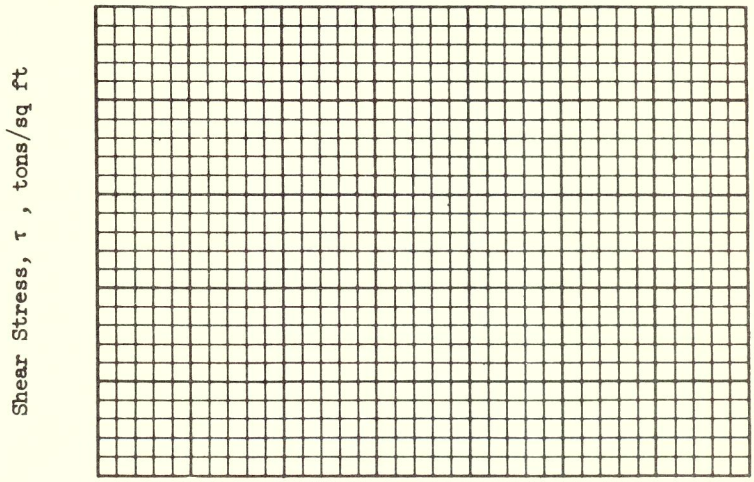
(TRANSLUCENT) *(UC $ Consol. Tests)

U.S. GOVERNMENT PRINTING OFFICE 1963 OF—709-126

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA

Reqn. No. 44-64-FSM
W. O. No. 2394





Test No.			1			
Initial	Water content	w_o	21.9 %	%	%	%
	Void ratio	e_o	.649			
	Saturation	S_o	91.0 %	%	%	%
	Dry density lb/cu ft	γ_d	102.2			
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	21.1 %	%	%	%
	Void ratio	e_f	.649			
Major principal stress, tons/sq ft		σ_1	2.14			
Minor principal stress, tons/sq ft		σ_3	0.0			
Time to failure, min			2.0			
Initial diameter, cm			3.50			
Initial height, H_o, cm			7.87			

Shear Values

ϕ = -- °

tan ϕ = --

c = 1.07 tons/sq ft

Type Test UC
Method of Saturation N/A

☐ Controlled Stress ☒ Controlled Strain

Type of specimen Undisturbed Rate of strain 1.4 %/min

Classification Brown lean clay (CL) G = 2.70

LL 45 PL 23 PI 22 D_{10} --

Remarks See gradation curve on ENG Form 2087.

Project MILLER'S FERRY, MOBILE DISTRICT
Lab.No. 202/377

Area West Bank Road

Boring No. WBR-3 Sample No. 3

Depth 10.0' - 12.0' Date 2 June 1964

TRIAXIAL COMPRESSION TEST REPORT

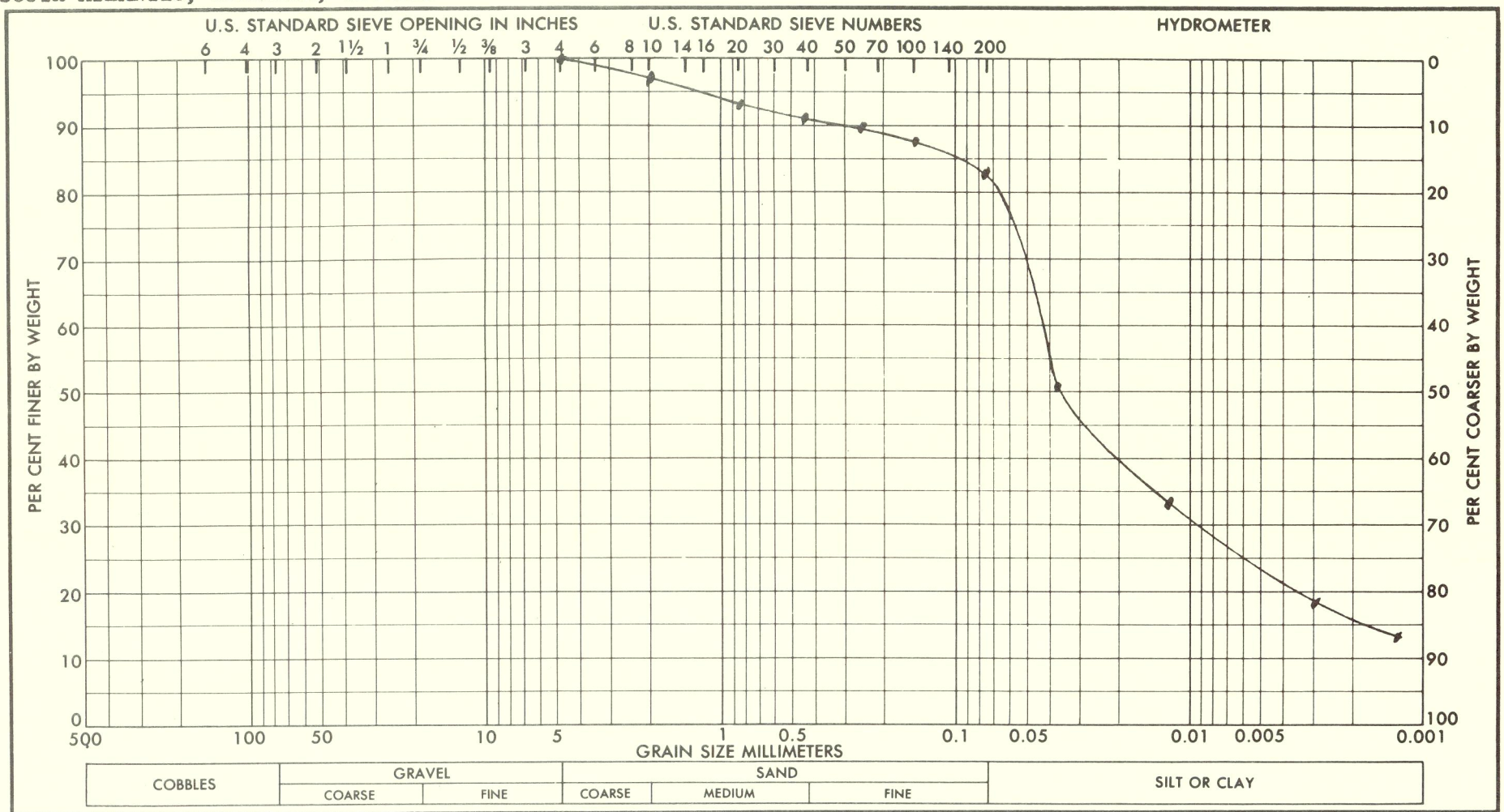
ENG FORM 1 MAY 63 2089 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

0 3426

CHART NO. 49

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA

Reqn. No. 44-64-F&M
Work Order No. 2394



SAMPLE NO.	~~XXXX~~ DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
3	10.0'-12.0'	Brown lean clay (CL)	22.1	45	23	22

PROJECT Millers Ferry, Mobile District
Lab No. 202/377 (UC Test)
AREA West Bank Road
BORING NO. WBR-3
DATE 2 June 1964

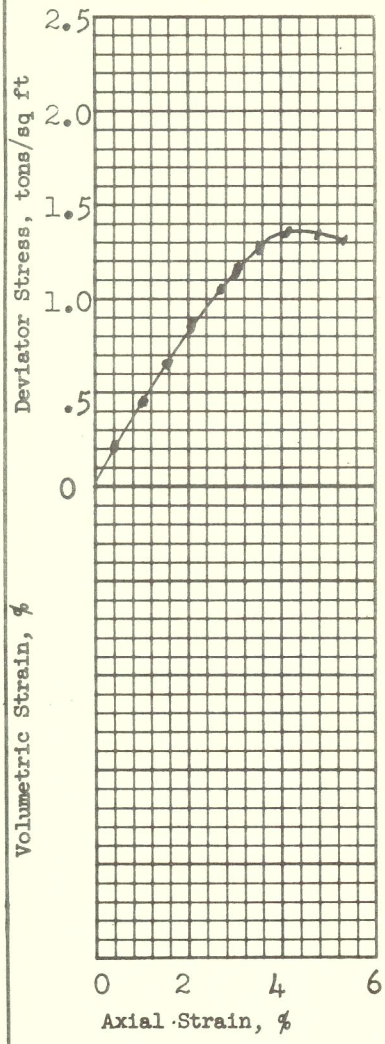
GRADATION CURVES

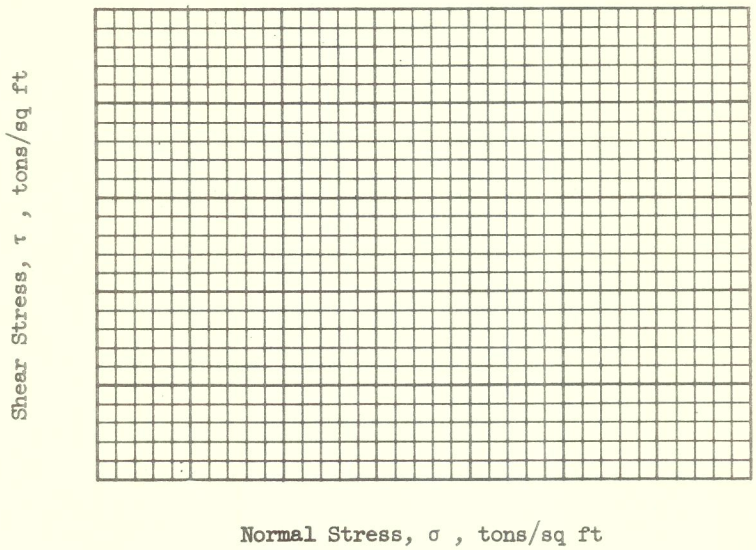
CHART NO. 50

ENG FORM 2087
1 MAY 63

REPLACES WES FORM NO. 1241, SEP 1962, WHICH IS OBSOLETE. *(TRANSLUCENT)*

U.S. GOVERNMENT PRINTING OFFICE : 1963 OF—709-126





Test No.			1			
Initial	Water content	w_o	26.0 %	%	%	%
	Void ratio	e_o	.823			
	Saturation	S_o	86.0 %	%	%	%
	Dry density lb/cu ft	γ_d	93.1			
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	25.3 %	%	%	%
	Void ratio	e_f	.823			
Major principal stress, tons/sq ft		σ_1	1.36			
Minor principal stress, tons/sq ft		σ_3	0.0			
Time to failure, min			4.0			
Initial diameter, cm			3.50			
Initial height, H_o, cm			7.87			

Shear Values

ϕ = - °

tan ϕ = -

c = 0.68 tons/sq ft

Type Test UC

Method of Saturation ~~N/A~~ [ ] Controlled Stress [X] Controlled Strain

Type of specimen Undisturbed Rate of strain 1.0 ~~in~~ %/min

Classification Brown fat clay (CH) G=2.72

LL 51 PL 26 PI 25 D_{10} -

Remarks See Gradation Curve on ENG Form 2087

Project Miller's Ferry, Mobile District

Lab. No. 202/378

Area West Bank Road

Boring No. WBR-3 Sample No. 4

Depth ~~Elk~~ 15.0'-17.0' Date 1 June 1964

TRIAXIAL COMPRESSION TEST REPORT

REQ. NO. 44-64 F&M
W.O. NO. 2394

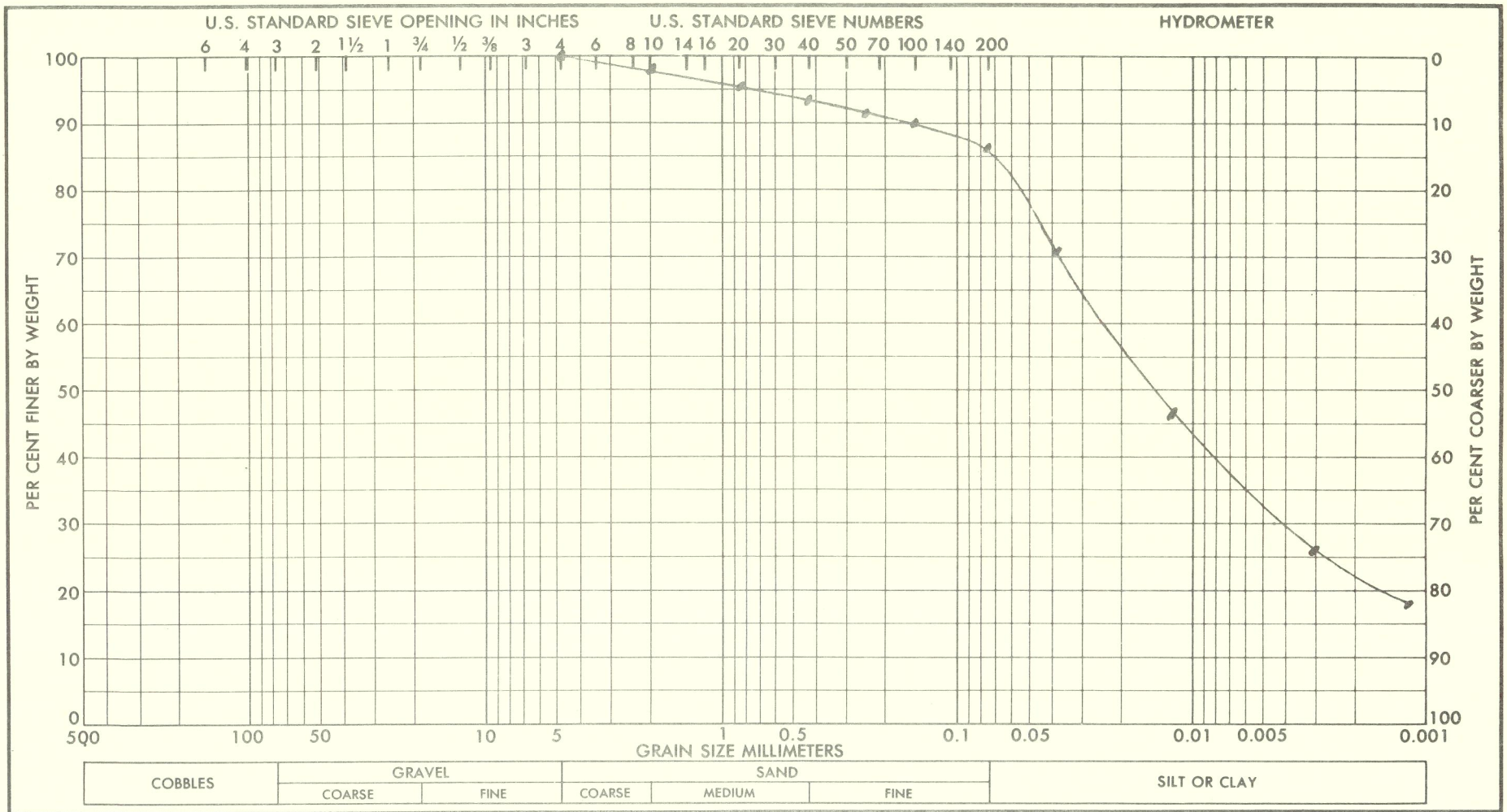
U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

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

CHART NO. 51

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GA.

REQ. NO. 44-64 F&M
W.O. NO. 2394



SAMPLE NO.	~~ELEV.~~ OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
4	15.0'-17.0'	Brown fat clay (CH)	25.5	51	26	25

PROJECT Millers Ferry, Mobile District
Lab. No. 202/378 *
AREA West Bank Road
BORING NO. WBR-3
DATE 1 June 1964

GRADATION CURVES

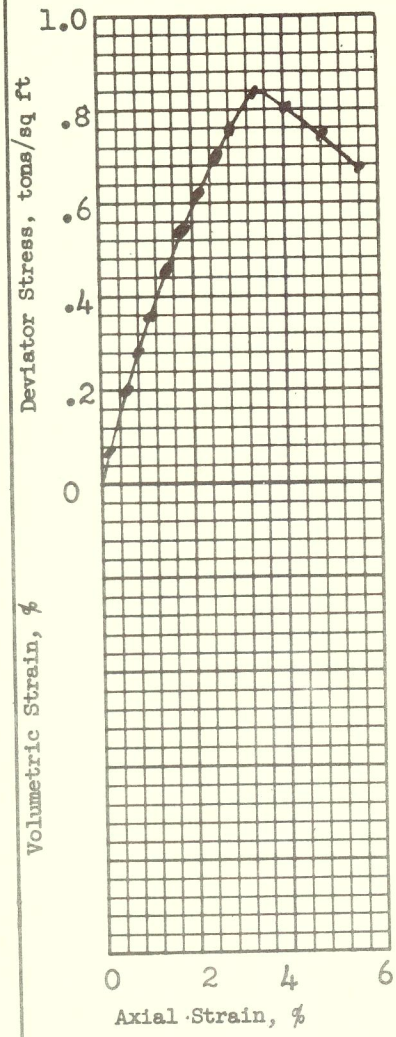
CHART NO. 52

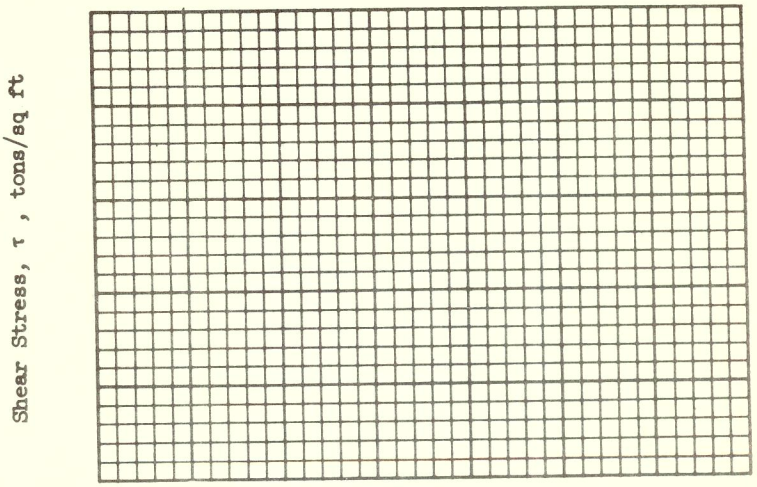
ENG FORM 2087
1 MAY 63

REPLACES WES FORM NO. 1241, SEP 1962, WHICH IS OBSOLETE.

(TRANSLUCENT) *(UC & Consol.Tests)

U.S. GOVERNMENT PRINTING OFFICE : 1963 OF—709-126





Test No.			1			
Initial	Water content	w_o	28.2 %	%	%	%
	Void ratio	e_o	.847			
	Saturation	S_o	89.9 %	%	%	%
	Dry density lb/cu ft	γ_d	91.2			
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	27.2 %	%	%	%
	Void ratio	e_f	.847			
Major principal stress, tons/sq ft		σ_1	0.84			
Minor principal stress, tons/sq ft		σ_3	0.0			
Time to failure, min			4.0			
Initial diameter, cm			3.50			
Initial height, H_o, cm			7.87			

Shear Values

ϕ = – °

tan ϕ = –

c = 0.42 tons/sq ft

Type Test UC

Method of Saturation N/A

☐ Controlled Stress ☒ Controlled Strain

Type of specimen Undisturbed Rate of strain 0.81 % in./min

Classification Brown lean clay (CL) G=2.70

LL 30 PL 21 PI 9 D_{10} –

Remarks See Gradation Curve on ENG Form 2087

Project Miller's Ferry, Mobile District Lab. 202/379

Area West Bank Road

Boring No. WBR-3 Sample No. 5

Depth 20.0'-22.0' Date 1 June 1964

TRIAXIAL COMPRESSION TEST REPORT

REQ. NO. 44-64 F&M
W.O. NO. 2394

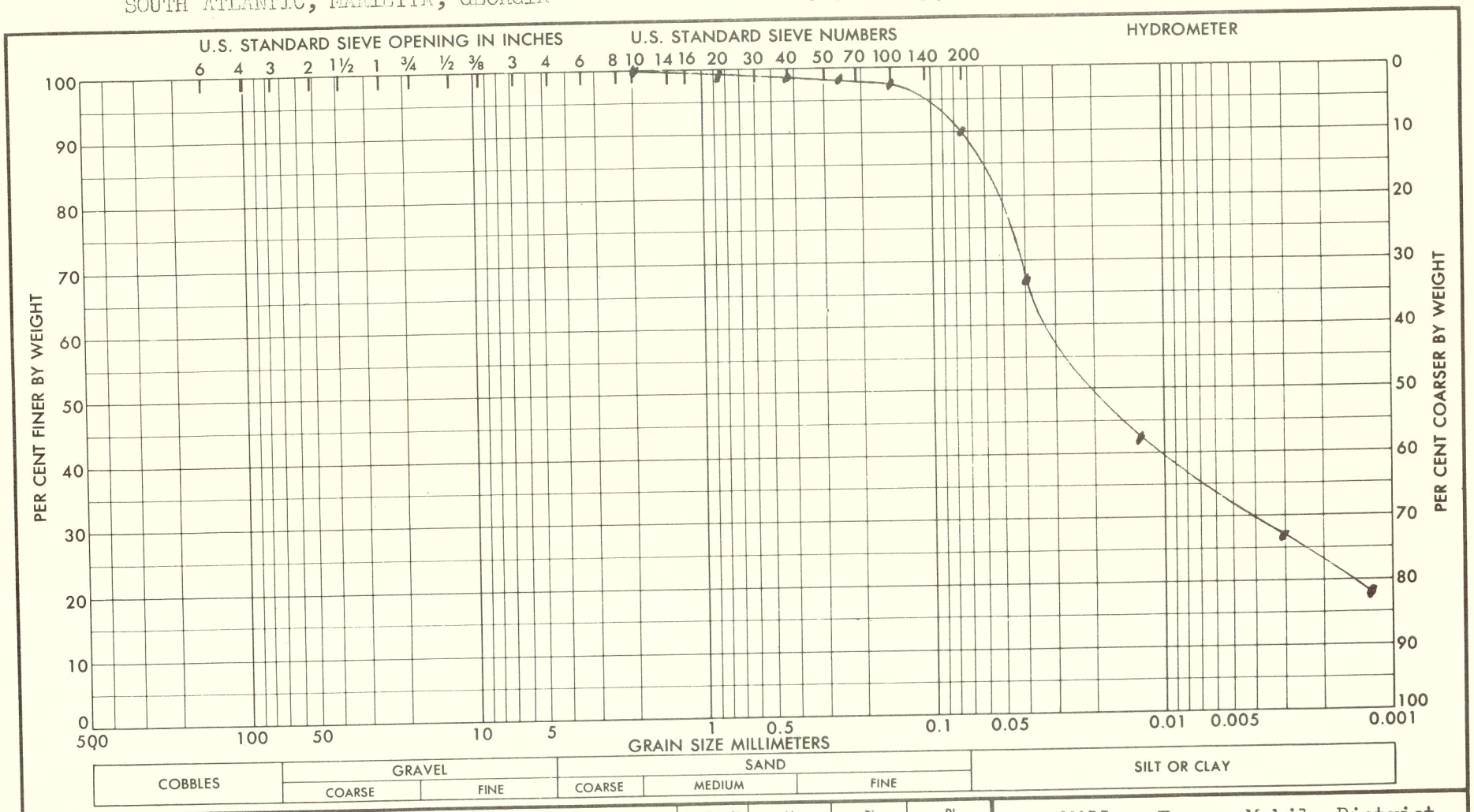
U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

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

CHART NO. 53

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 44-64 F&M
W.O. NO. 2394



SAMPLE NO.	~~ELEV~~ OR DEPTH	CLASSIFICATION	NAT W%	LL	PL	PI
5	20.0'-22.0'	Brown lean clay (CL)	27.6	30	21	9

PROJECT Millers Ferry, Mobile District
Lab. No. 202/379*
AREA West Bank Road
BORING NO. WBR-3
DATE 1 June 1964

GRADATION CURVES

CHART NO. 54

ENG FORM 2087
1 MAY 63

REPLACES WES FORM NO. 1241, SEP 1962, WHICH IS OBSOLETE.

(TRANSLUCENT)(UC & Consol. test)

U.S. GOVERNMENT PRINTING OFFICE : 1963 OF—709-126

"Q" TEST

FOUNDATION SOILS

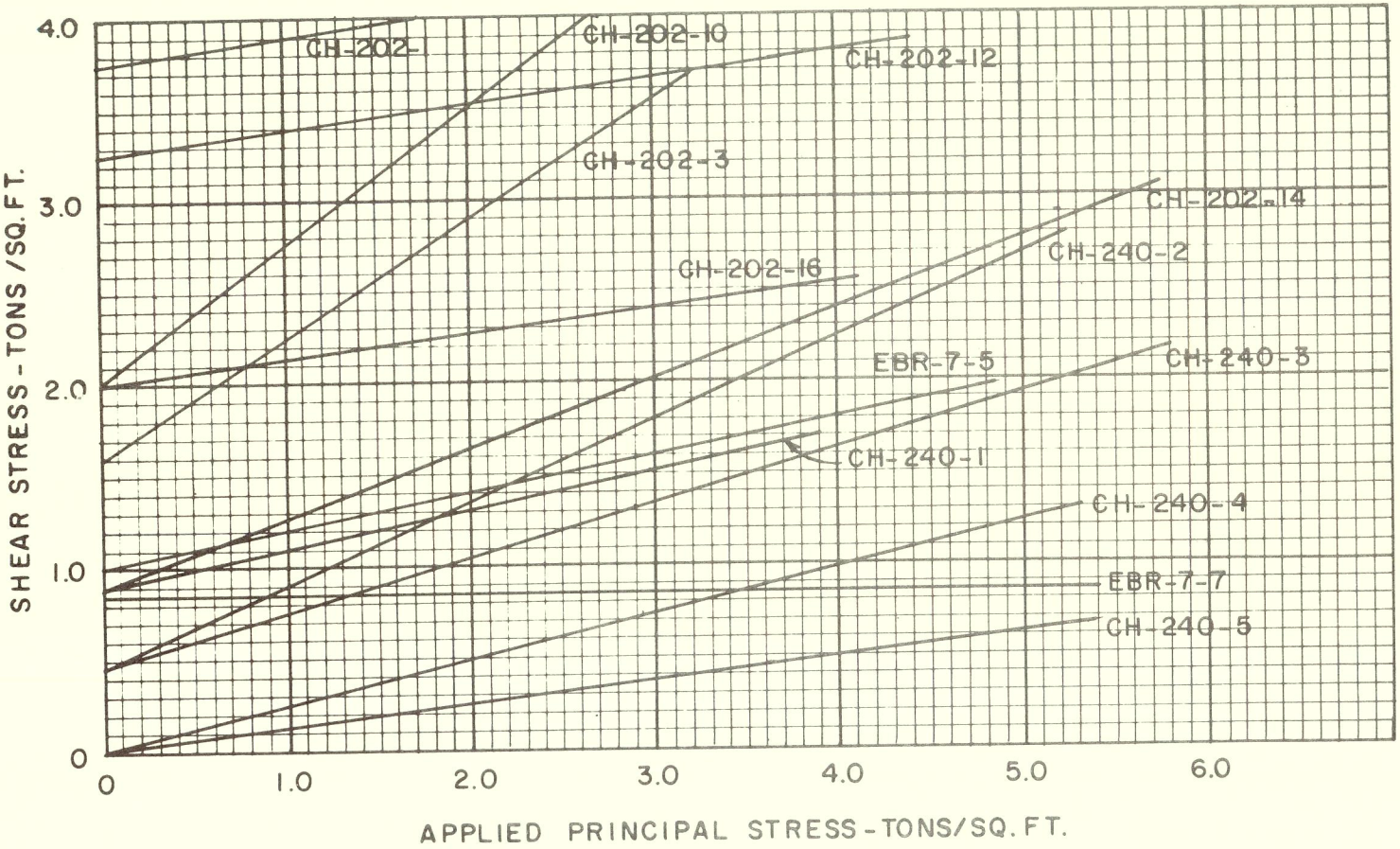


CHART NO. 55

"R" TEST

FOUNDATION SOILS

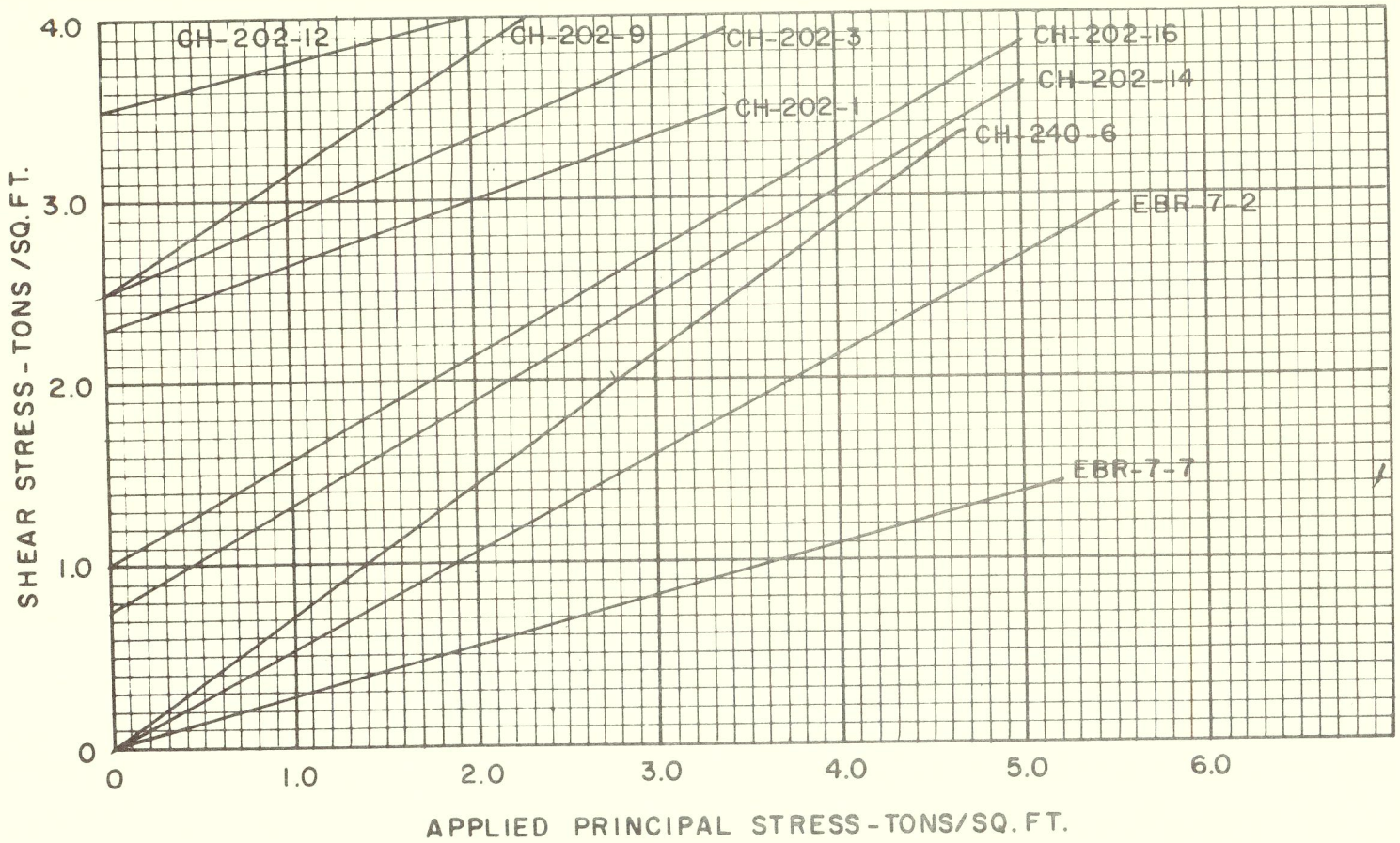


CHART NO. 56

"S" TESTS

FOUNDATION SOILS

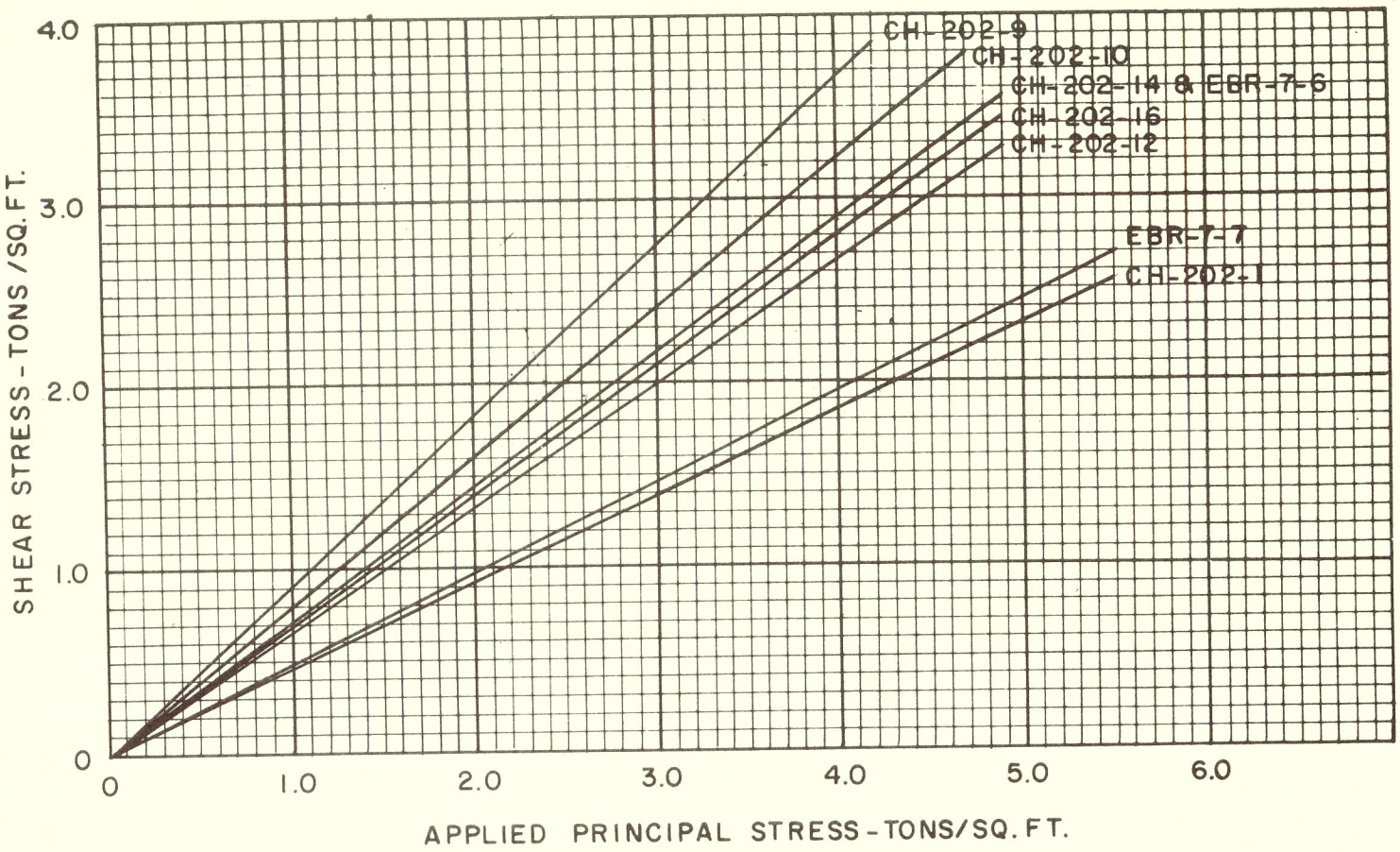
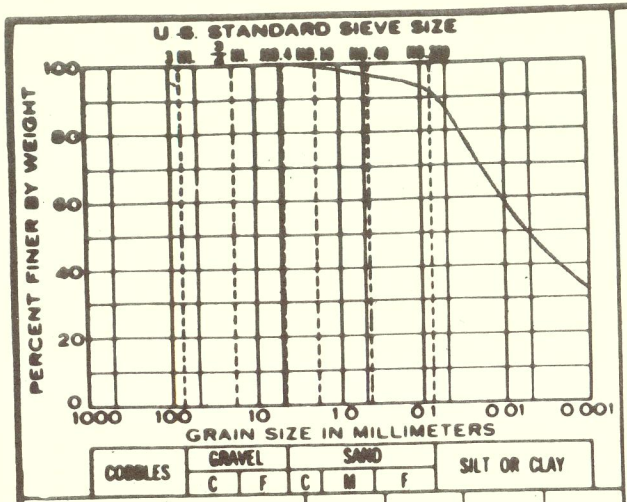


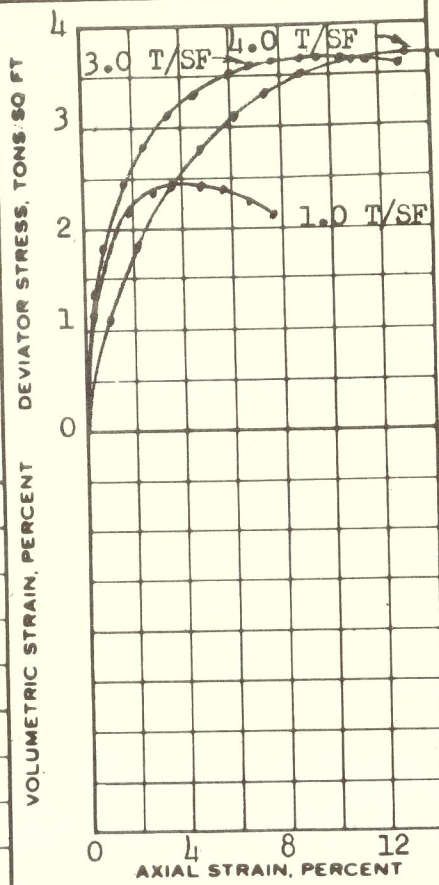
CHART NO. 57

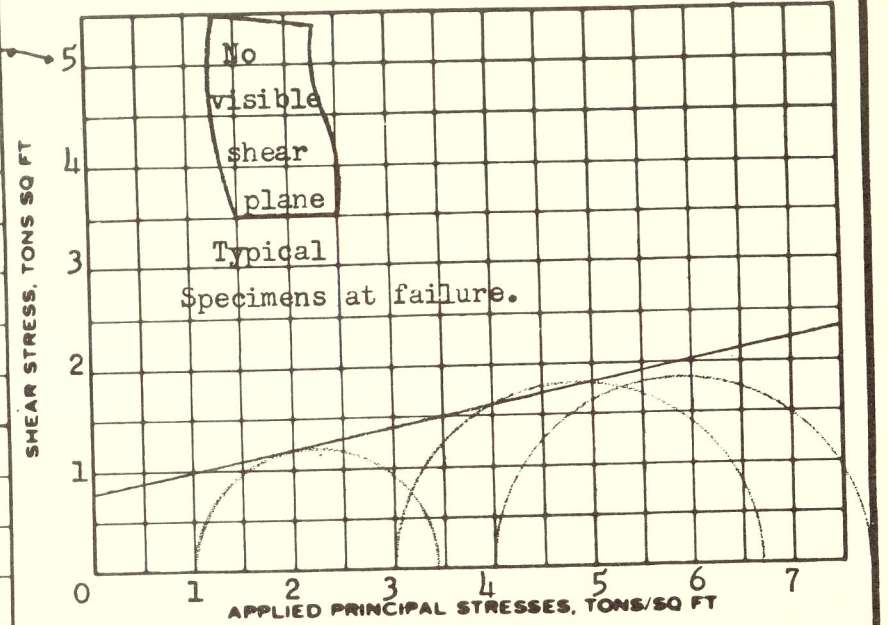
ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907



	Test No.	1	2	3
INITIAL	Water Content, W_o %	20.0	19.6	19.5
	Dry Density Lbs/Cu Ft	100.5	100.8	101.0
	Void Ratio, e_o	.677	.672	.669
	Saturation, S_o %	79.8	78.7	78.8
BEFORE TEST	W.C. after Saturation, W_s %	-	-	-
	Saturation, S %	-	-	-
	Consol Pressure T/SqFt	-	-	-
	W.C. after Consol, W_c %	-	-	-
	Void Ratio after Consol e_c	-	-	-
AT FAILURE	Maj Prin Stress, σ_1 T/Sq Ft	3.45	6.69	7.72
	Min Prin Stress, σ_{III} T/Sq Ft	1.00	3.00	4.00
	Water Content, W_f %	20.0	19.6	19.5
	Void Ratio, e_f	.677	.672	.669
Specimen Diameter Inches		1.38	1.38	1.38
Initial Height Inr		3.10	3.10	3.10
Test Time to Failure Min		4.5	11.0	15.5
Final Sat., SF-%		79.8	78.7	78.8





Remarks: 1. Specimen requested to be remolded at optimum moisture content (20.0%) to 100% of maximum standard Proctor dry density (100.5 pcf).
2. Max. standard Proctor dry density = 100.5 pcf.
3. Avg. Field moiture content = 22.4%.

Type of Test "Q" Test
~~X Bonbenk~~
Control led Strain
Un Consolidated, Un Drained

Type of Specimen Remolded

ϕ = 12.0°	Tan ϕ = .213	c = 0.80 T/Sq Ft

Classification Brown lean clay(CL)

LL	49	G	2.70
PL	23	D_{10}	-

Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB
Sample No. Composite
~~Elev or~~ Depth 0.0'-10.0'
Date 13 November 1963

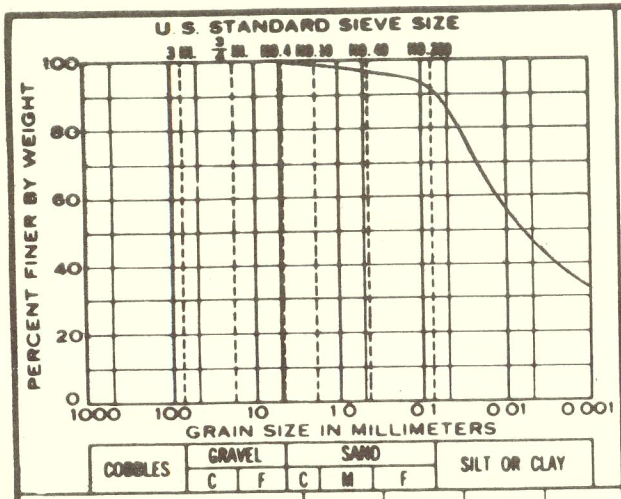
TRIAXIAL COMPRESSION TEST REPORT

(EM 1110-2-1803) (Translucent)

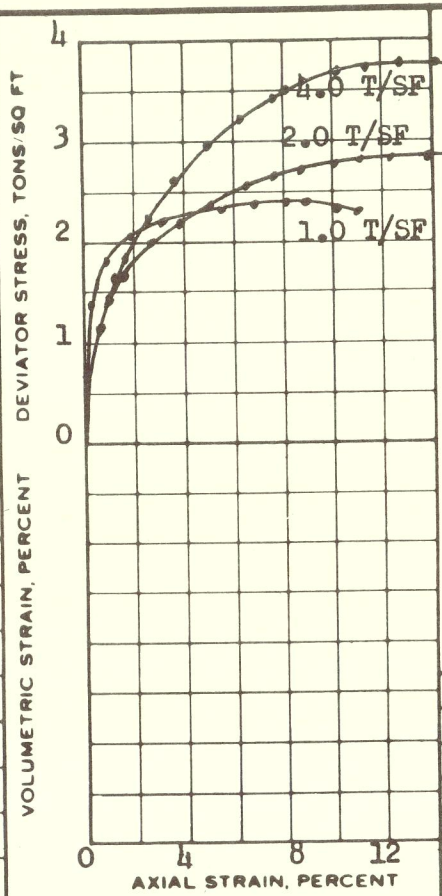
CHART NO. 58

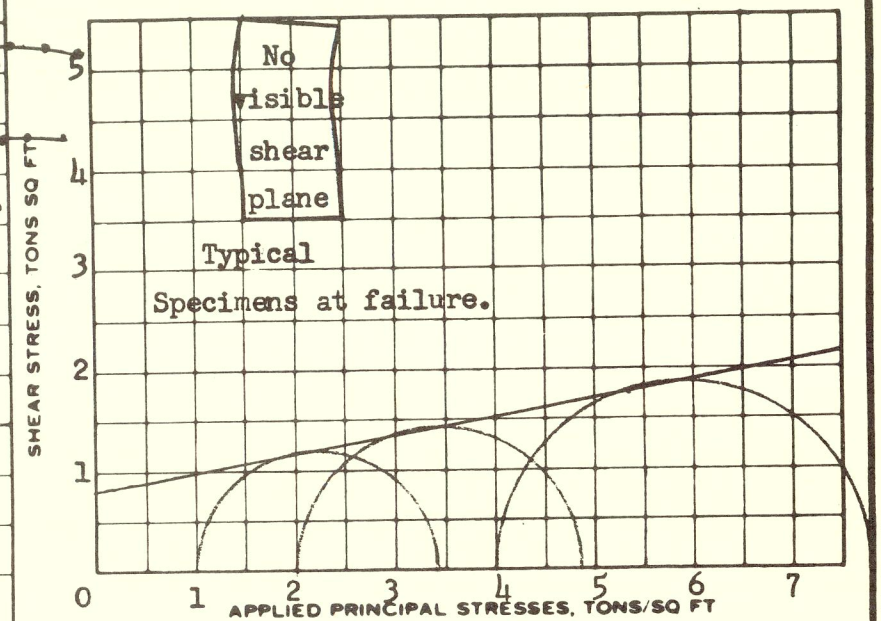
U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907



	Test No.	1	2	3
INITIAL	Water Content, W_o %	20.0	20.4	20.2
	Dry Density Lbs/Cu Ft	95.6	95.1	95.3
	Void Ratio, e_o	.763	.771	.768
	Saturation, S_o %	70.7	71.5	71.1
BEFORE TEST	W.C. after Saturation, W_s %	-	-	-
	Saturation, S %	-	-	-
	Consol Pressure T/Sq Ft	-	-	-
	W.C. after Consol, W_c %	-	-	-
	Void Ratio after Consol e_c	-	-	-
AT FAILURE	Maj Prin Stress, σ_1 T/Sq Ft	3.42	4.86	7.78
	Min Prin Stress, σ_{3m} T/Sq Ft	1.00	2.00	4.00
	Water Content, W_f %	20.0	20.4	20.2
	Void Ratio, e_f	.763	.771	.768
Specimen Diameter Inches		1.38	1.38	1.38
Initial Height Inr		3.10	3.10	3.10
Test Time to Failure Min		11.0	18.5	15.5
Final Sat., SF-%		70.7	71.5	71.1





Remarks: 1. Specimens requested to be remolded at optimum moisture content (20.0%) to 95.5 pcf (95% of maximum standard Proctor dry density).
2. Max. standard Proctor dry density = 100.5 pcf.
3. Avg. Field moisture content = 22.4%.

Type of Test "Q" Test
~~Constant~~ Control led Strain
Un Consolidated, Un Drained

Type of Specimen Remolded

Ø = 10.5°	Tan Ø = 0.185	c = 0.80 T/Sq Ft

Classification Brown lean clay(CL)

LL	49	G	2.70
PL	23	D_m	-

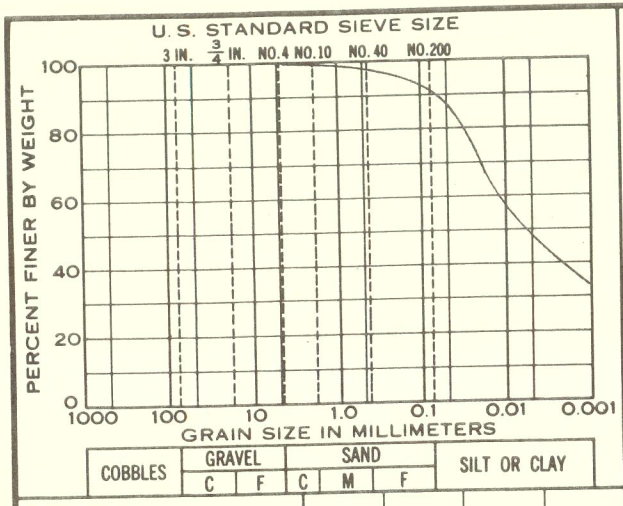
Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB
Sample No. Composite
~~Elev or~~ Depth 0.0'-10.0'
Date 13 November 1963

TRIAXIAL COMPRESSION TEST REPORT

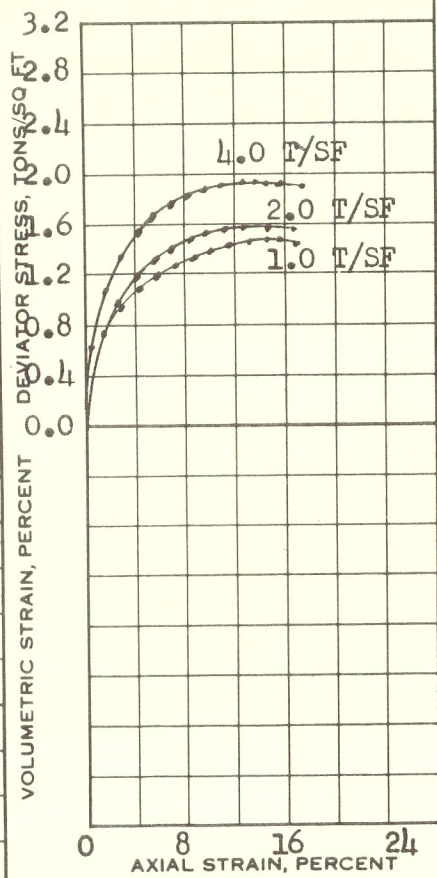
CHART NO. 59

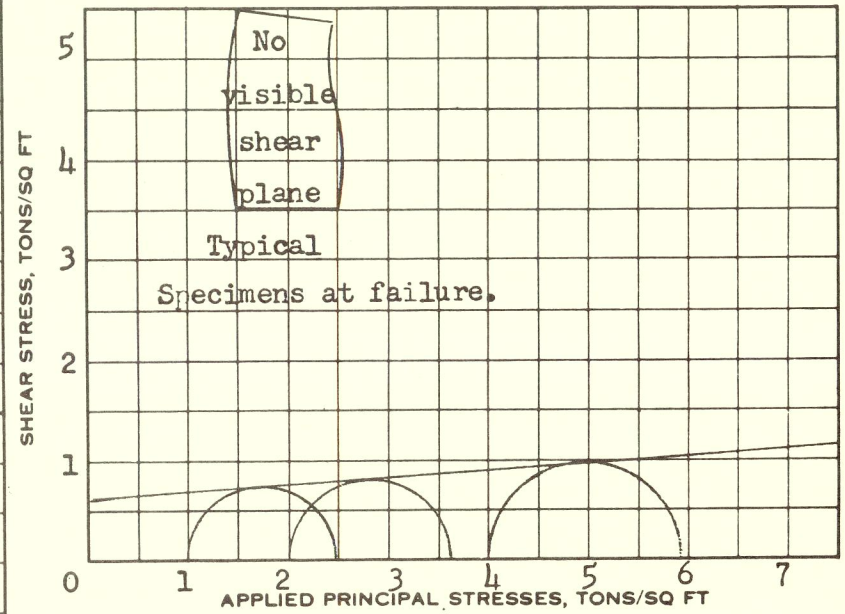
U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907



	Test No.	1	2	3
INITIAL	Water Content, W_o %	24.3	24.1	23.8
	Dry Density Lbs/Cu Ft	95.3	95.4	95.7
	Void Ratio, e_o	.769	.765	.761
	Saturation, S_o %	85.4	85.0	84.4
BEFORE TEST	W.C. after Saturation, W_s %	-	-	-
	Saturation, S %	-	-	-
	Consol Pressure T/SqFt	-	-	-
	W.C. after Consol, W_c %	-	-	-
	Void Ratio after Consol e_c	-	-	-
AT FAILURE	Maj Prin Stress, σ_1 T/Sq Ft	2.48	3.59	5.95
	Min Prin Stress, σ_m T/Sq Ft	1.00	2.00	4.00
	Water Content, W_f %	24.3	24.1	23.8
	Void Ratio, e_f	.769	.765	.761
Specimen Diameter Inches		1.38	1.38	1.38
Initial Height Inc		3.10	3.10	3.10
Test Time to Failure Min		15.0	13.5	15.0
Final Sat., SF-%		85.4	85.0	84.4





Remarks: 1. Specimens requested to be remolded at 24.0% (4% above optimum) moisture content to 95.5 pcf (95% of maximum standard Proctor dry density).
2. Max. standard Proctor dry density = 100.5 pcf at optimum moisture content of 20.0%.
3. Avg. Field moisture content = 22.4%.

Type of Test "Q" Test
~~Constant~~ Controlled Strain
Un Consolidated, Un Drained

Type of Specimen Remolded

ϕ = 4.0° | Tan ϕ = .070 | c = 0.60 T/Sq Ft

Classification Brown lean clay (CL)

LL	49	G	2.70
PL	23	D_{10}	-

Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB | Sample No. Composite
~~Elevation~~ Depth 0.0'-10.0' | Date 14 November 1963

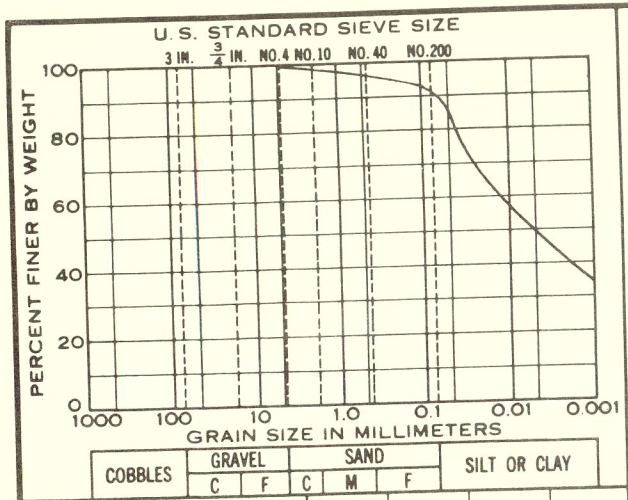
TRIAXIAL COMPRESSION TEST REPORT

CHART NO. 60

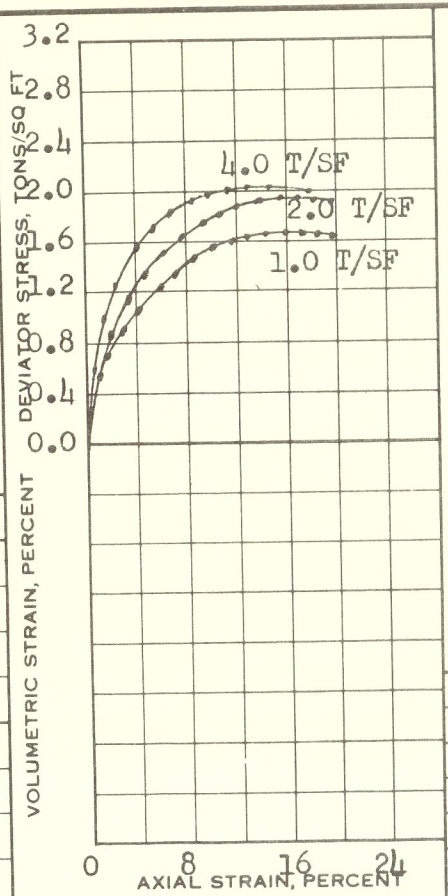
ENG FORM 1 DEC 51 2089

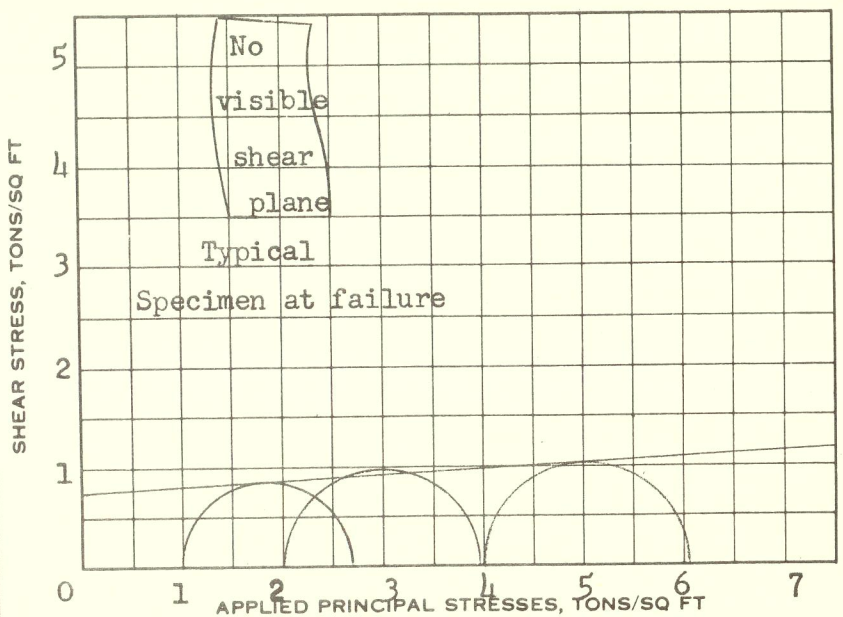
U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907



	Test No.	1	2	3
INITIAL	Water Content, W_0 %	24.2	24.0	23.7
	Dry Density Lbs/Cu Ft	100.3	100.5	100.7
	Void Ratio, e_0	.679	.677	.674
	Saturation, S_0 %	96.2	95.8	95.0
BEFORE TEST	W.C. after Saturation, W_s %	-	-	-
	Saturation, S %	-	-	-
	Consol Pressure T/Sq Ft	-	-	-
	W.C. after Consol, W_c %	-	-	-
	Void Ratio after Consol e_c	-	-	-
AT FAILURE	Maj Prin Stress, σ_1 T/Sq Ft	2.69	3.94	6.02
	Min Prin Stress, σ_m T/Sq Ft	1.00	2.00	4.00
	Water Content, W_f %	24.2	24.0	23.7
	Void Ratio, e_f	.679	.677	.674
Specimen Diameter Inches		1.38	1.38	1.38
Initial Height Inc		3.10	3.10	3.10
Test Time to Failure Min		17.0	15.5	12.5
Final Sat., SF-%		96.2	95.8	95.0





Remarks: 1. Specimens requested to be remolded at 4% above optimum moisture content (24.0%) to 100% of maximum standard Proctor dry density (100.5 pcf)
2. Max. Standard Proctor dry density = 100.5 pcf at optimum moisture content of 20.0%.
3. Avg. Field moisture content = 22.4%.

Type of Test "Q" Test
~~Constant~~ Controlled Strain
Un Consolidated, Un Drained

Type of Specimen Remolded

ϕ = 3.5 °	Tan ϕ = 0.061	c = 0.75 T/Sq Ft

Classification Brown lean clay (CL)

LL	49	G	2.70
PL	23	D_{10}	-

Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB
Sample No. Composite
~~Elev or~~ Depth 0.0'-10.0'
Date 13 November 1963

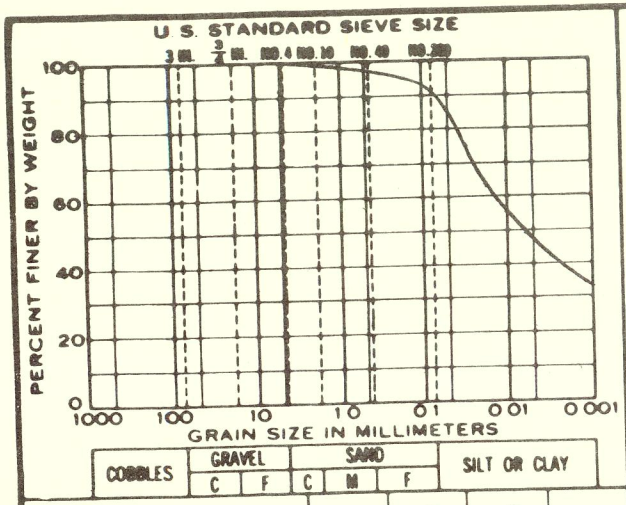
TRIAXIAL COMPRESSION TEST REPORT

CHART NO. 61

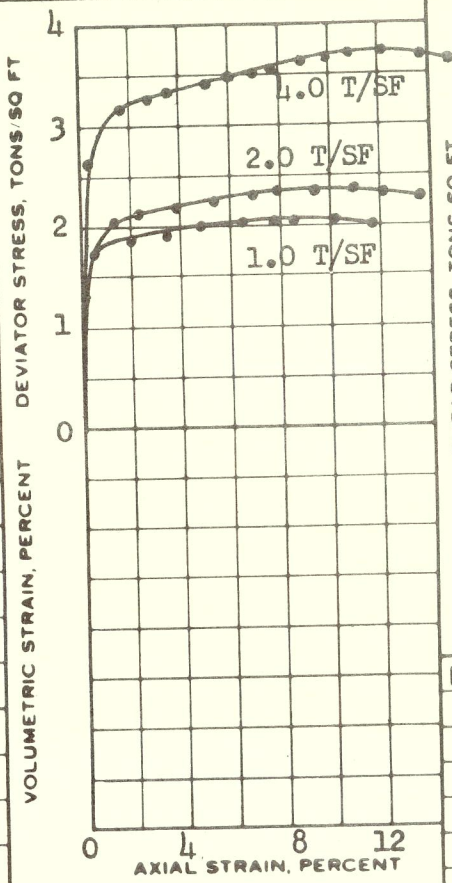
ENG FORM 1 DEC 51 2089

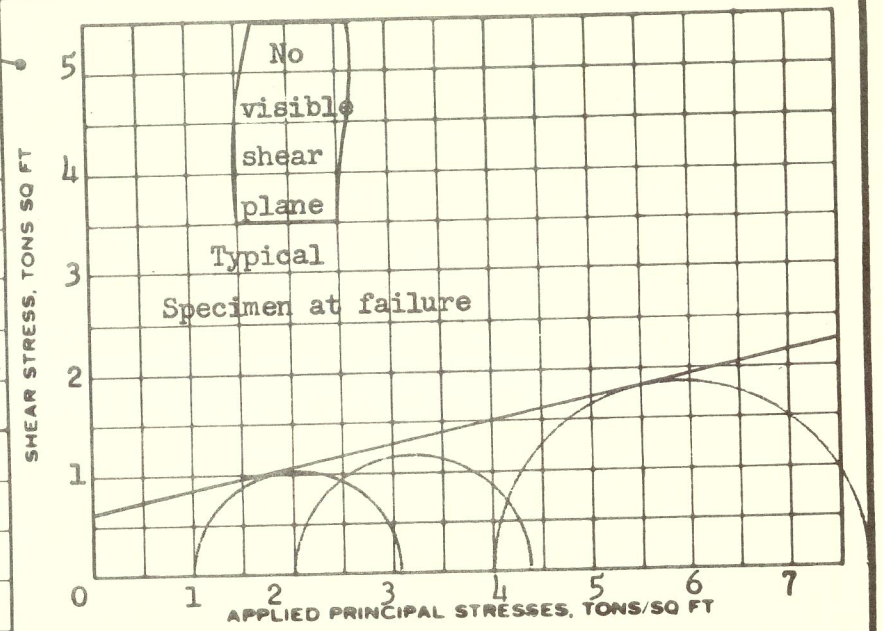
U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907



	Test No.	1	2	3
INITIAL	Water Content, W_o %	20.5	20.1	20.5
	Dry Density Lbs/Cu Ft	100.1	100.5	100.0
	Void Ratio, e_o	.683	.676	.684
	Saturation, S_o %	81.1	80.2	81.0
BEFORE TEST	W.C. after Saturation, W_s %	-	-	-
	Saturation, S %	-	-	-
	Consol Pressure T/Sq Ft	1.00	2.00	4.00
	W.C. after Consol, W_c %	22.8	22.6	22.6
	Void Ratio after Consol e_c	.614	.611	.620
AT FAILURE	Maj Prin Stress, σ_1 T/Sq Ft	3.07	4.39	7.75
	Min Prin Stress, σ_{3m} T/Sq Ft	1.00	2.00	4.00
	Water Content, W_f %	22.8	22.6	22.6
	Void Ratio, e_f	.614	.611	.620
Specimen Diameter Inches		1.38	1.38	1.38
Initial Height Inc		3.10	3.10	3.10
Test Time to Failure Min		9.0	11.0	13.5
Final Sat., SF-%		100.0	100.0	98.4





Remarks: 1. Specimens requested to be remolded at optimum moisture content (20.0%) to 100% of maximum standard Proctor dry density (100.5 pcf)
2. Specimens saturated by back pressure.
3. Max. standard Proctor dry density = 100.5 pcf.
4. Avg. Field moisture content = 22.4%.

Type of Test "R" Test
~~Constant~~ Controlled Strain
Consolidated, Un Drained

Type of Specimen Remolded & Saturated

Ø = 12.5°	Tan Ø = 0.222	c = 0.60 T/Sq Ft

Classification Brown lean clay (CL)

LL	49	G	2.70
PL	23	D_{50}	-

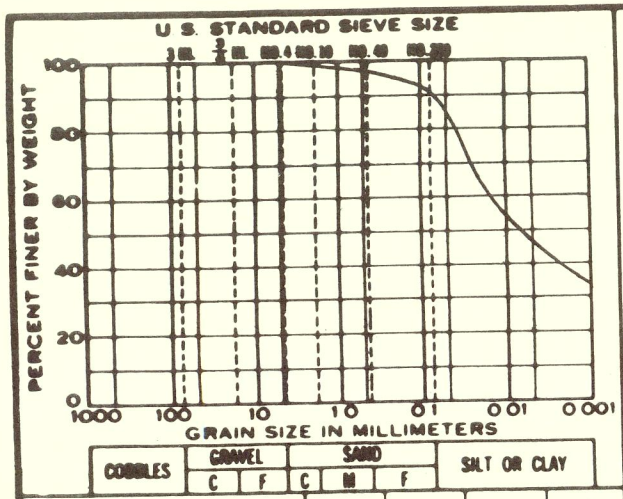
Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB
Sample No. Composite
~~Elev or~~ Depth 0.0'-10.0'
Date 13 November 1963

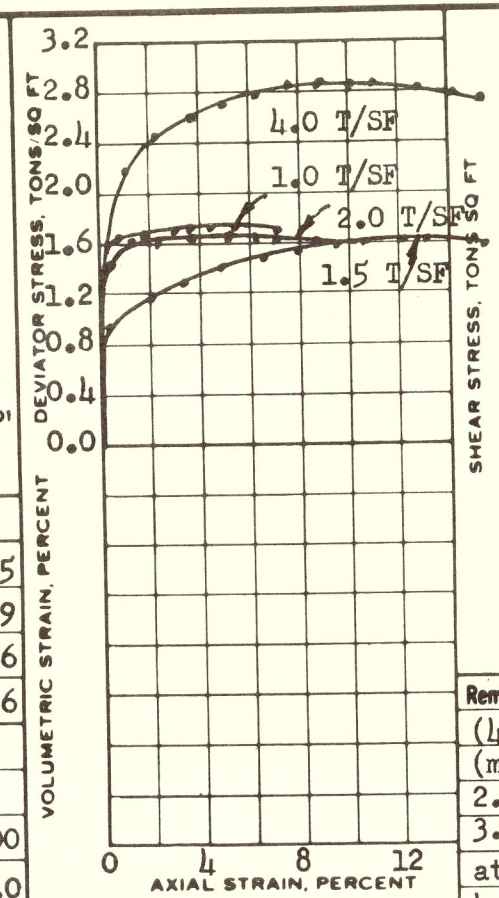
TRIAXIAL COMPRESSION TEST REPORT

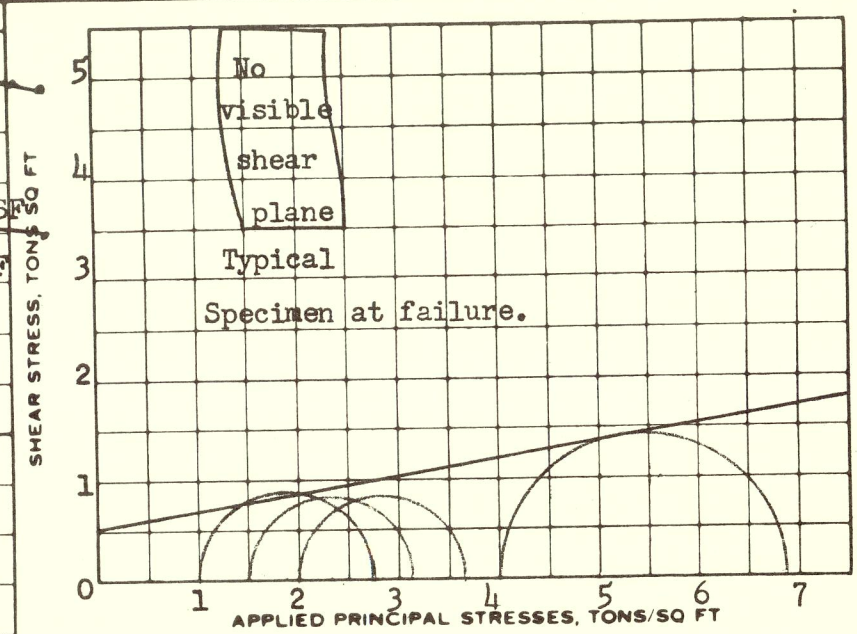
CHART NO. 62

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907







	Test No.	1	2	3	4
INITIAL	Water Content, W_o %	24.1	24.1	24.6	24.5
	Dry Density Lbs/Cu Ft	100.4	100.4	99.8	99.9
	Void Ratio, e_o	.678	.678	.688	.686
	Saturation, S_o %	96.1	96.1	96.8	96.6
BEFORE TEST	W.C. after Saturation, W_s %	-	-	-	-
	Saturation, S %	-	-	-	-
	Consol Pressure T/SqFt	1.00	1.50	2.00	4.00
	W.C. after Consol, W_c %	24.4	22.4	23.0	19.0
	Void Ratio after Consol e_c	.660	.605	.620	.513
AT FAILURE	Maj Prin Stress, σ_1 T/SqFt	2.78	3.14	3.67	6.87
	Min Prin Stress, σ_3 T/SqFt	1.00	1.50	2.00	4.00
	Water Content, W_f %	24.4	22.4	23.0	19.0
	Void Ratio, e_f	.660	.605	.620	.513
Specimen Diameter Inches		1.38	1.38	1.38	1.38
Initial Height Inr		3.10	3.10	3.10	3.10
Test Time to Failure Min		6.5	9.0	5.0	9.0
Final Sat., SF-%		100.0	100.0	100.0	100.0

Type of Test "R" Test
~~Constant~~ Controlled Strain
Consolidated, Un Drained

Type of Specimen, Remolded & Saturated

ø = 10.0°	Tan ø = 0.176	c = 0.50 T/Sq Ft

Classification Brown lean clay (CL)

LL	49	G	2.70
PL	23	D_{50}	-

Remarks: 1. Specimens requested to be remolded at 24.0% (4% above optimum moisture) content to 100.5 pcf (maximum standard Proctor dry density).
2. Specimens saturated by back pressure.
3. Max. standard Proctor dry density = 100.5 pcf at optimum moisture content of 20.0%.
4. Avg. Field moisture content = 22.4%.

Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB
Sample No. Composite
~~Elevation~~ Depth 0.0'-10.0'
Date 13 November 1963

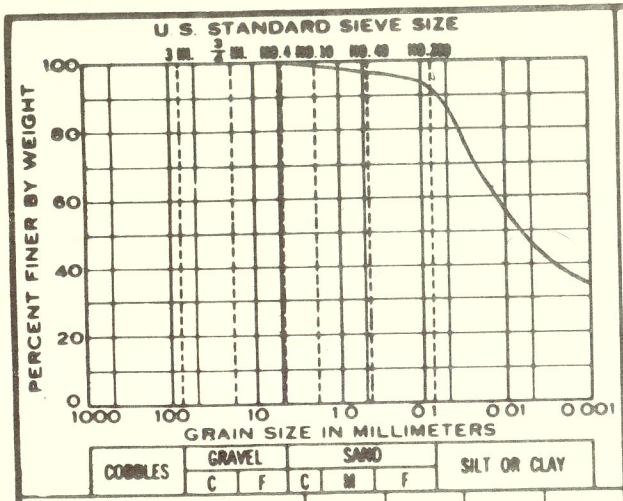
TRIAXIAL COMPRESSION TEST REPORT

CHART NO. 63

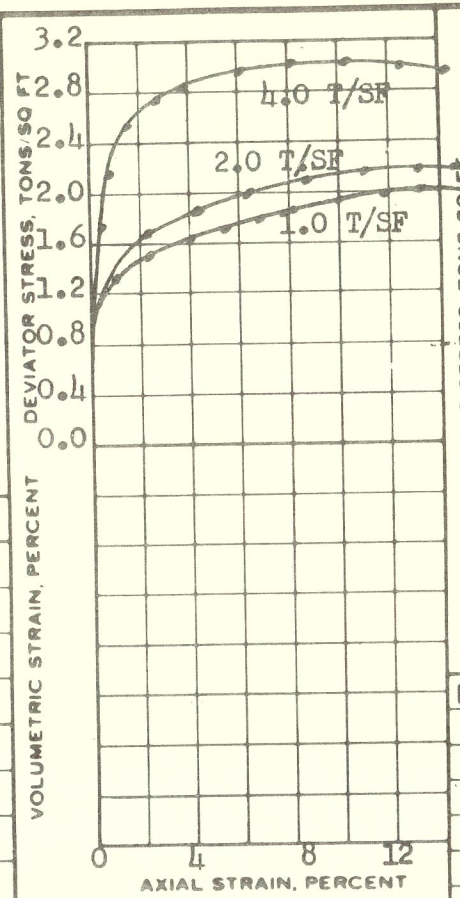
(EM 1110-2-1906)

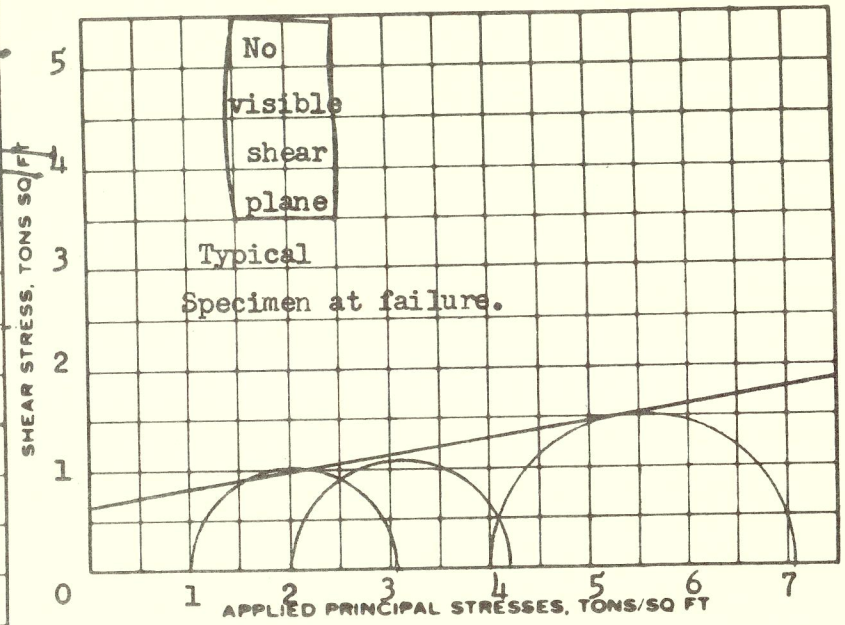
U. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907



	Test No.	1	2	3
INITIAL	Water Content, W_o %	20.4	20.2	20.4
	Dry Density Lbs/Cu Ft	95.2	95.3	95.2
	Void Ratio, e_o	.769	.767	.770
	Saturation, S_o %	71.6	71.2	71.6
BEFORE TEST	W.C. after Saturation, W_s %	-	-	-
	Saturation, S %	-	-	-
	Consol Pressure T/Sq Ft	1.00	2.00	4.00
	W.C. after Consol, W_c %	23.9	23.2	22.0
	Void Ratio after Consol e_c	.652	.632	.594
AT FAILURE	Maj Prin Stress, σ_1 T/Sq Ft	3.04	4.20	7.04
	Min Prin Stress, σ_m T/Sq Ft	1.00	2.00	4.00
	Water Content, W_f %	23.9	23.2	22.0
	Void Ratio, e_f	.652	.632	.594
Specimen Diameter Inches		1.38	1.38	1.38
Initial Height Inc		3.10	3.10	3.10
Test Time to Failure Min		14.5	9.5	6.5
Final Sat., SF-%		98.8	100.0	100.0





Remarks: 1. Specimens requested to be remolded at optimum moisture content (20.0%) to 95.5 pcf (95% of maximum standard Proctor dry density).
2. Specimens saturated by back pressure.
3. Max. standard Proctor dry density = 100.5 pcf
4. Avg. Field moisture content = 22.4%

Type of Test "R" Test
Controlled Strain
Consolidated, UNDrained

Type of Specimen Remolded and Saturated

ϕ = 9.5° | Tan ϕ = 0.167 | c = 0.60 T/Sq Ft

Classification Brown lean clay (CL)

LL	49	G	2.70
PL	23	D_m	-

Project Millers Ferry Dam

Lab. No. 202/362

Area West Bank Borrow

Boring No. WBB | Sample No. Composite

Depth 0.0'-10.0' | Date 13 November 1963

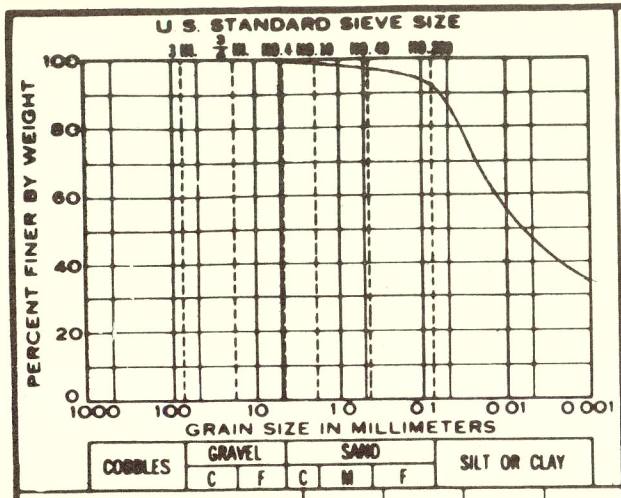
TRIAXIAL COMPRESSION TEST REPORT

(EM 1110-2-1803)

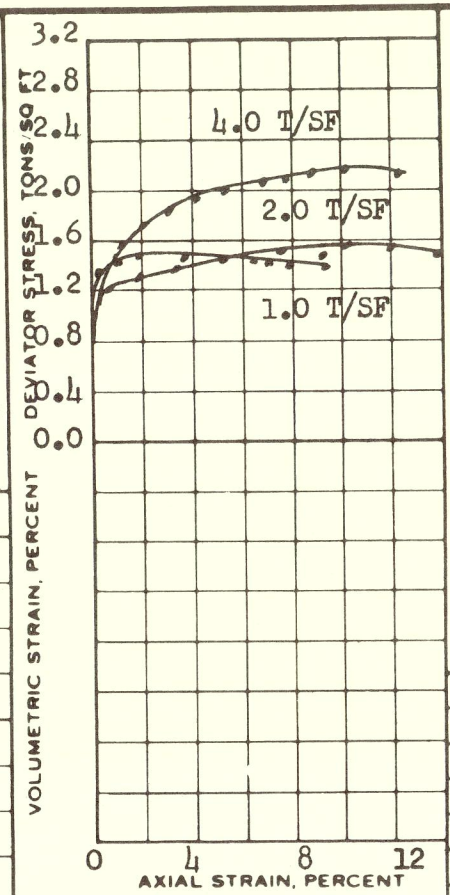
QUARTERMASTER 64

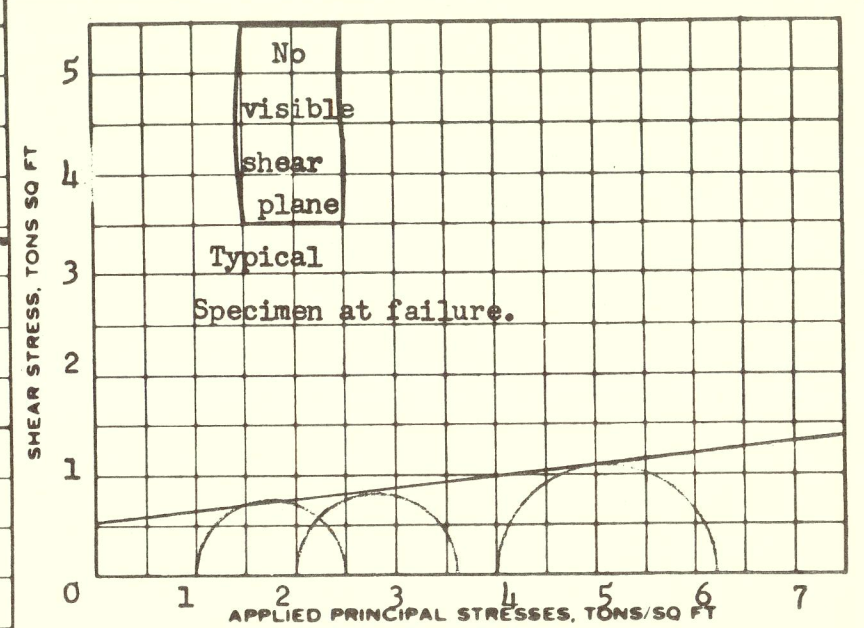
U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907



	Test No.	1	2	3
INITIAL	Water Content, W_o %	24.1	23.5	23.9
	Dry Density Lbs/Cu Ft	95.5	96.0	95.5
	Void Ratio, e_o	.764	.755	.764
	Saturation, S_o %	85.1	84.1	84.5
BEFORE TEST	W.C. after Saturation, W_s %	-	-	-
	Saturation, S %	-	-	-
	Consol Pressure T/Sq Ft	1.00	2.00	4.00
	W.C. after Consol, W_c %	27.3	26.8	24.9
	Void Ratio after Consol e_c	.737	.723	.674
AT FAILURE	Maj Prin Stress, σ_1 T/Sq Ft	2.50	3.58	6.20
	Min Prin Stress, σ_{III} T/Sq Ft	1.00	2.00	4.00
	Water Content, W_f %	27.3	26.8	24.9
	Void Ratio, e_f	.737	.723	.674
Specimen Diameter Inches		1.38	1.38	1.38
Initial Height Inr		3.10	3.10	3.10
Test Time to Failure Min		1.5	10.0	11.0
Final Sat., SF-%		100.0	100.0	100.0





Remarks: 1. Specimens requested to be remolded at 24.0% (4% above optimum) moisture content to 95.5 pcf (95% of maximum standard Proctor dry density)
2. Specimens saturated by back pressure.
3. Max. standard Proctor dry density = 100.5 pcf at optimum moisture content of 20.0%.
4. Avg. Field moisture content = 22.4%.

Type of Test "R" Test
~~Constant~~ Control led Strain
Consolidated, UnDrained

Type of Specimen Remolded & Saturated

Ø = 6.5 °	Tan Ø = 0.114	c- 0.52 T/Sq Ft

Classification Brown lean clay(CL)

LL	49	G	2.70
PL	23	D_{50}	-

Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB — Sample No. Composite
Elev or Depth 0.0'-10.0' — Date 13 November 1963

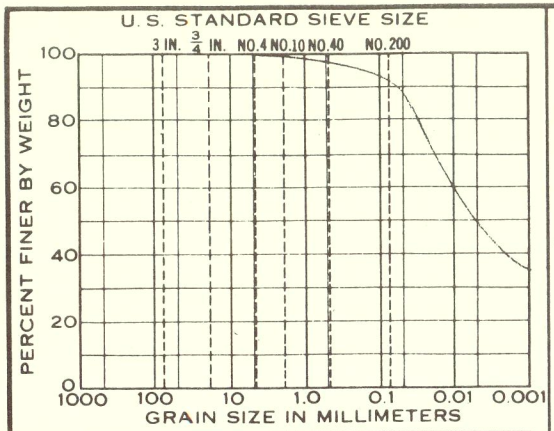
TRIAXIAL COMPRESSION TEST REPORT

CHART NO. 65

ENG FORM 2089 (EM 1110-2-1803) (Translucent)

U. S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907

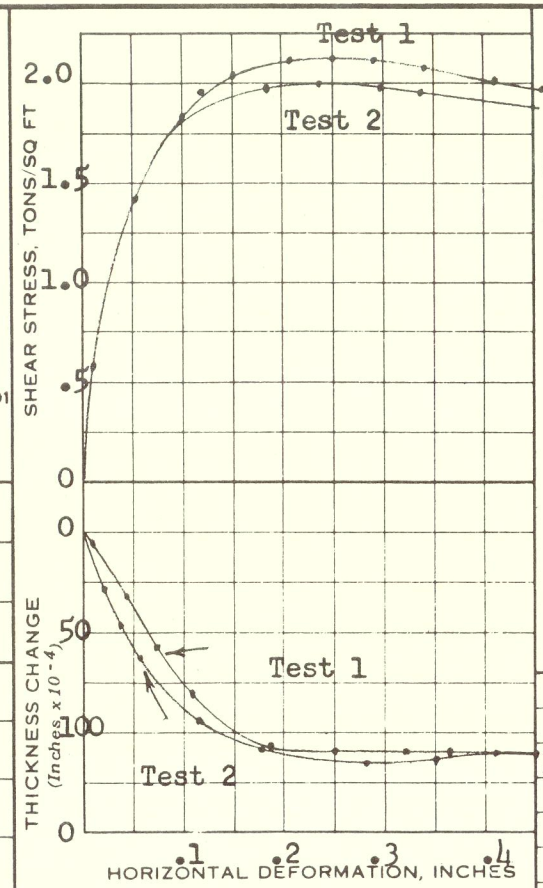


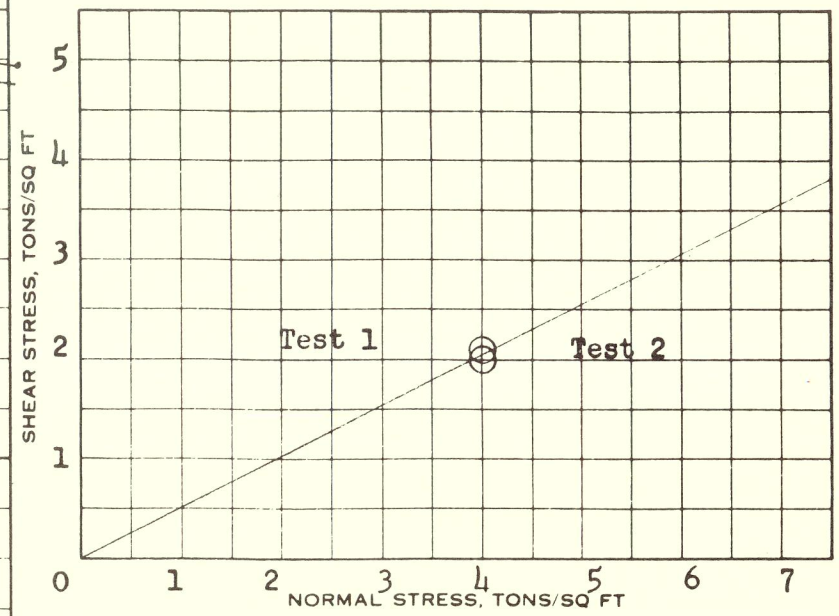
COBBLES	GRAVEL C	GRAVEL F	SAND C	SAND M	SAND F	SILT OR CLAY

Classification Brown lean clay (CL)

LL	49	G	2.70
PL	23	D_{10}	-

Test No.	1	2
Initial Water Content, W_0 %	20.2	20.1
Dry Density Lbs/Cu Ft	95.3	95.3
Void Ratio, e_0	.768	.768
Saturation, S_0 %	70.8	70.8
Duration of Test, min (To failure)	185	185
WC after Test, W_f* %	21.5	21.0
Normal Stress, σ T/Sq Ft	4.0	4.0
Max. Shear Stress, τ T/Sq Ft at Void ratio fail	2.12 .524	2.00 .479
% Sat at fail	100.0	100.0





Remarks: 1. Specimen requested to be remolded at 20.0% (optimum moisture content) to 95.5 pcf (95% of the Max Stnd Proctor density of 100.5 pcf).
2. Avg. Field moisture content = 22.4%.
3. * Moisture content based on middle of sheared specimen.

Type of Test "S" Test – Controlled Strain
Consolidated
Drained

Type of Specimen
Remolded
3.00 in. square
0.50 in. thickness

SHEAR VALUES	Ø	TAN Ø	C, T/SQ FT
Maximum	27.0°	.510	0.0
Ultimate			

Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB
Sample No. Composite
Depth 0.0'-10.0'
Date 13 November 1963

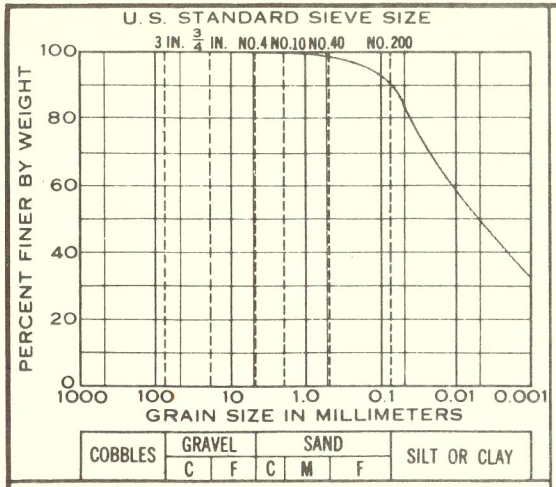
DIRECT SHEAR TEST REPORT

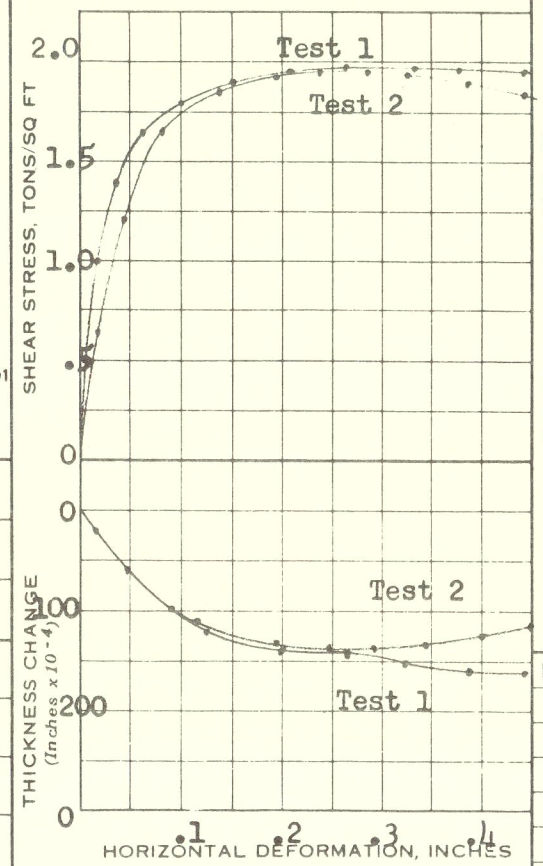
CHART NO. 66

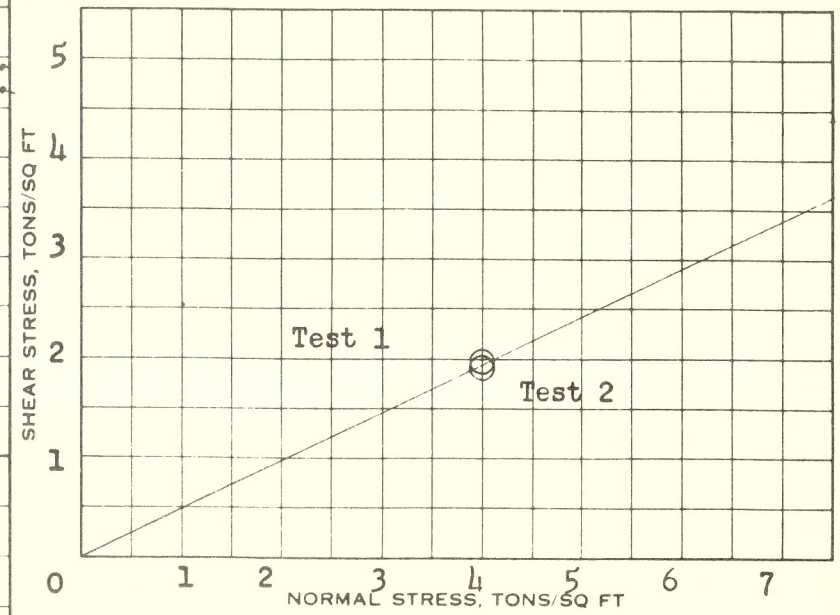
ENG FORM 1 FEB 58 2092 (TRANSLUCENT) (EM 1110-2-1803)

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907







Classification Brown lean clay (CL)

LL	49	G	2.70
PL	23	D_{10}	-

Test No.	1	2
Initial Water Content, W_0 %	24.6	24.7
Dry Density Lbs/Cu Ft	95.0	94.9
Void Ratio, e_0	.773	.775
Saturation, S_0 %	86.0	86.2
Duration of Test, min (To failure)	190	160
WC after Test, W_F * %	21.8	21.0
Normal Stress, σ T/Sq Ft	4.0	4.0
Max. Shear Stress, τ T/Sq Ft at	1.96	1.91
Void ratio fail	.514	.570
% Sat at fail	100.0	100.0

Type of Test "S" Test – Controlled Strain
Consolidated
Drained

Type of Specimen
Remolded
3.00 in. square
0.50 in. thickness

SHEAR VALUES	Ø	TAN Ø	C, T/SQ FT
Maximum	26.0°	.488	0.0
Ultimate			

Remarks: 1. Specimen requested to be remolded at 24.0% (4% above the optimum moisture content of 20.0%) to 95.5 pcf (95% of the max. stnd. Proctor density of 100.5 pcf).
2. Avg. Field moisture = 22.4%.
3. * Moist. content based on middle of sheared specimen.

Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB
Sample No. Composite
Depth 0.0'-10.0'
Date 13 November 1963

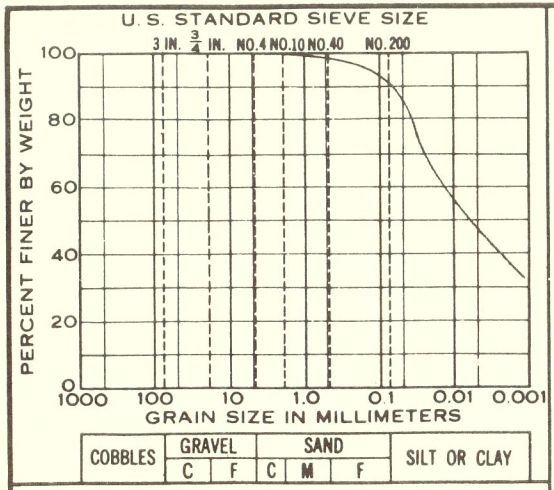
DIRECT SHEAR TEST REPORT

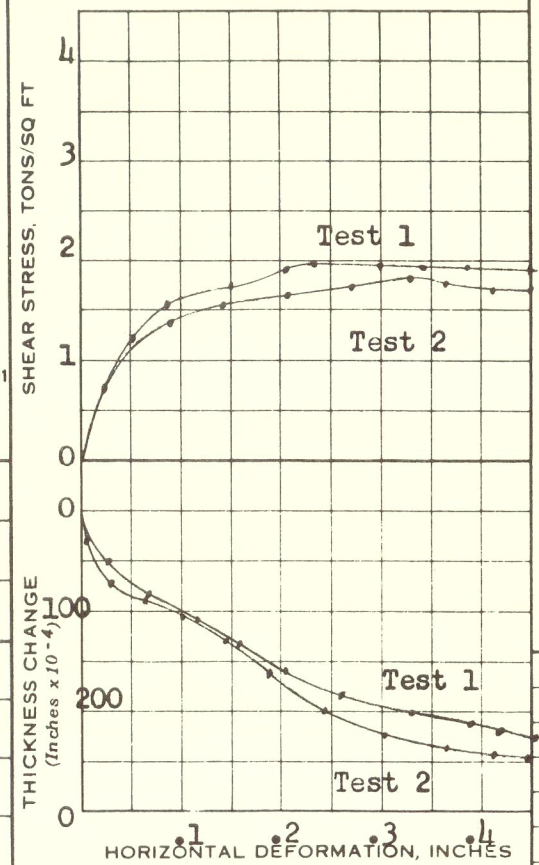
CHART NO. 67

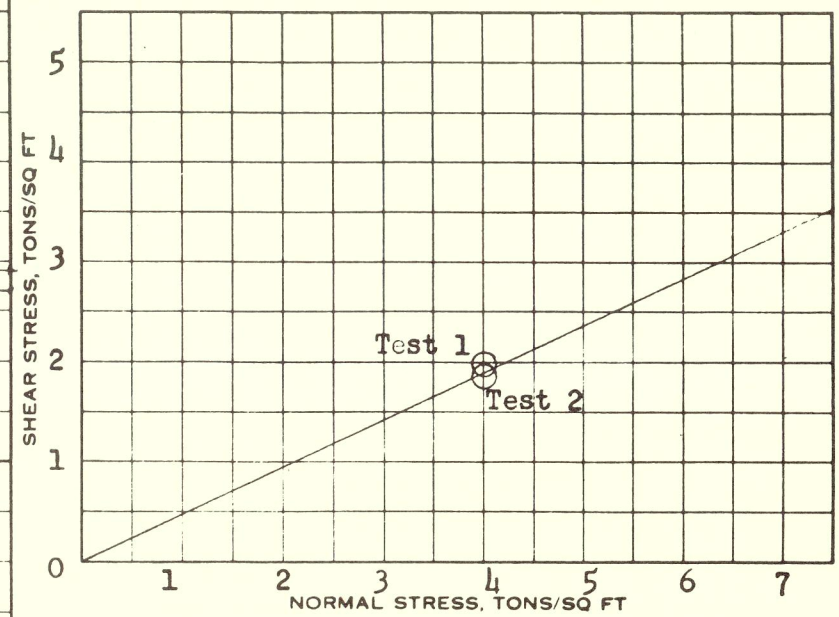
ENG FORM 1 FEB 58 2092 (TRANSLUCENT) (EM 1110-2-1803)

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F8
W.O. NO. 1907







Classification Brown lean clay (CL)

LL	49	G	2.70
PL	23	D_{10}	-

Test No.	1	2
Initial Water Content, W_0 %	20.2	20.2
Dry Density Lbs/Cu Ft	100.3	100.3
Void Ratio, e_0	.680	.680
Saturation, S_0 %	80.3	80.2
Duration of Test, min To Failure	165	195
WC after Test, W_F % *	21.4	21.5
Normal Stress, σ T/Sq Ft	4.0	4.0
Max. Shear Stress, τ T/Sq Ft	1.96	1.83
Void ratio at fail	.435	.414
% Sat at fail	100.0	100.0

Type of Test "S" Test - Control led Strain Consolidated Drained

Type of Specimen Remolded

3.00 in. square

0.50 in. thickness

SHEAR VALUES	Ø	TAN Ø	C, T/SQ FT
Maximum	25.5°	.477	0.0
Ultimate			

Remarks: 1. Specimen requested to be remolded at 20.0% (optimum moisture content) to 100.5 pcf (100% Max. stnd. Proctor density).
2. Avg. Field moisture content = 22.4%.
3. * Moisture content based on middle of sheared sample.

Project Millers Ferry Dam

Lab. No. 202/362

Area West Bank Borrow

Boring No. WBB | Sample No. Composite

Depth 0.0'-10.0' | Date 13 November 1963

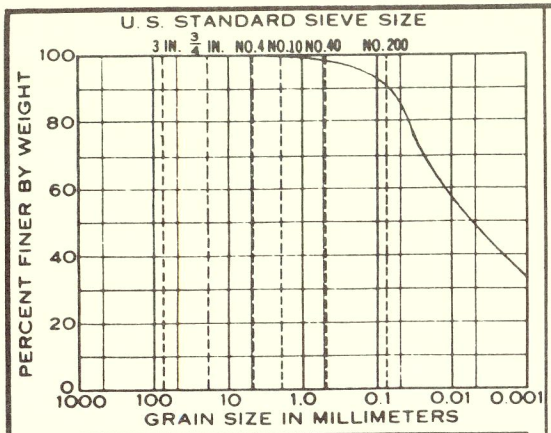
DIRECT SHEAR TEST REPORT

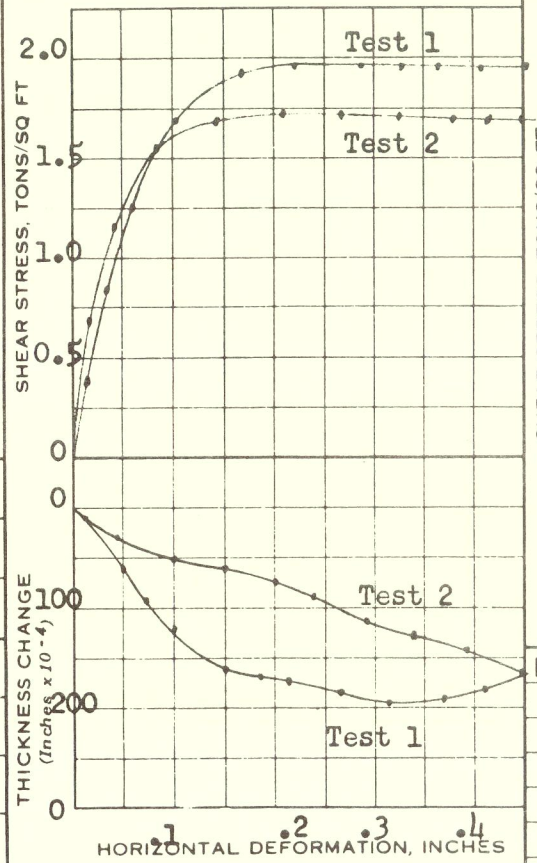
CHART NO 68

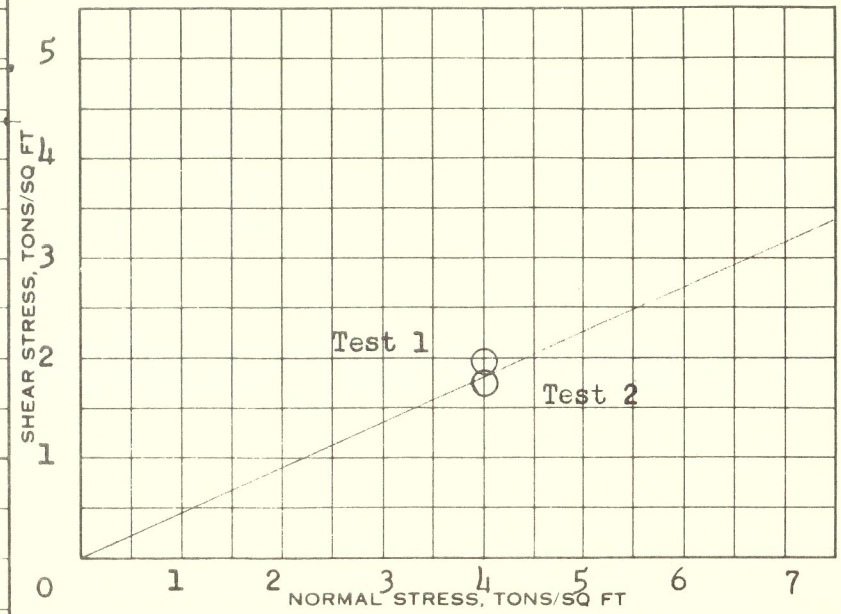
ENG FORM 1 FEB 58 2092 (TRANSLUCENT) (EM 1110-2-1803)

U. S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907







Classification Brown lean clay (CL)

LL	49	G	2.70
PL	23	D_{10}	-

Test No.	1	2
Initial Water Content, W_0 %	24.4	24.1
Dry Density Lbs/Cu Ft	100.2	100.4
Void Ratio, e_0	.681	.679
Saturation, S_0 %	96.6	96.1
Duration of Test min	To Failure 130	190
WC after Test, W_f %	22.5 *	21.2
Normal Stress, σ T/Sq Ft	4.0	4.0
Max. Shear Stress, τ T/Sq Ft	1.97	1.72
Void ratio at fail	.482	.494
% Sat at fail	100.0	100.0

Type of Test "S" Test – Control led Strain
Consolidated
Drained

Type of Specimen
Remolded
3.00 in. square
0.50 in. thickness

SHEAR VALUES	Ø	TAN Ø	C, T/SQ FT
Maximum	24.5°	.456	0.0
Ultimate			

Remarks: 1. Specimen requested to be remolded at 24.0% (4% above optimum moist. content of 20%) to 100.5 pcf (100% Maximum standard Proctor density).
2. Avg. Field moisture content = 22.4%.
3. * Moist. cont. based on middle of sheared sample.

Project Millers Ferry Dam
Lab. No. 202/362
Area West Bank Borrow
Boring No. WBB
Sample No. Composite
Depth 0.0'-10.0'
Date 13 November 1963

DIRECT SHEAR TEST REPORT

CHART NO. 69

ENG FORM 1 FEB 58 2092 (TRANSLUCENT) (EM 1110-2-1803)

"Q" TEST

WEST BANK BORROW
COMPOSITE

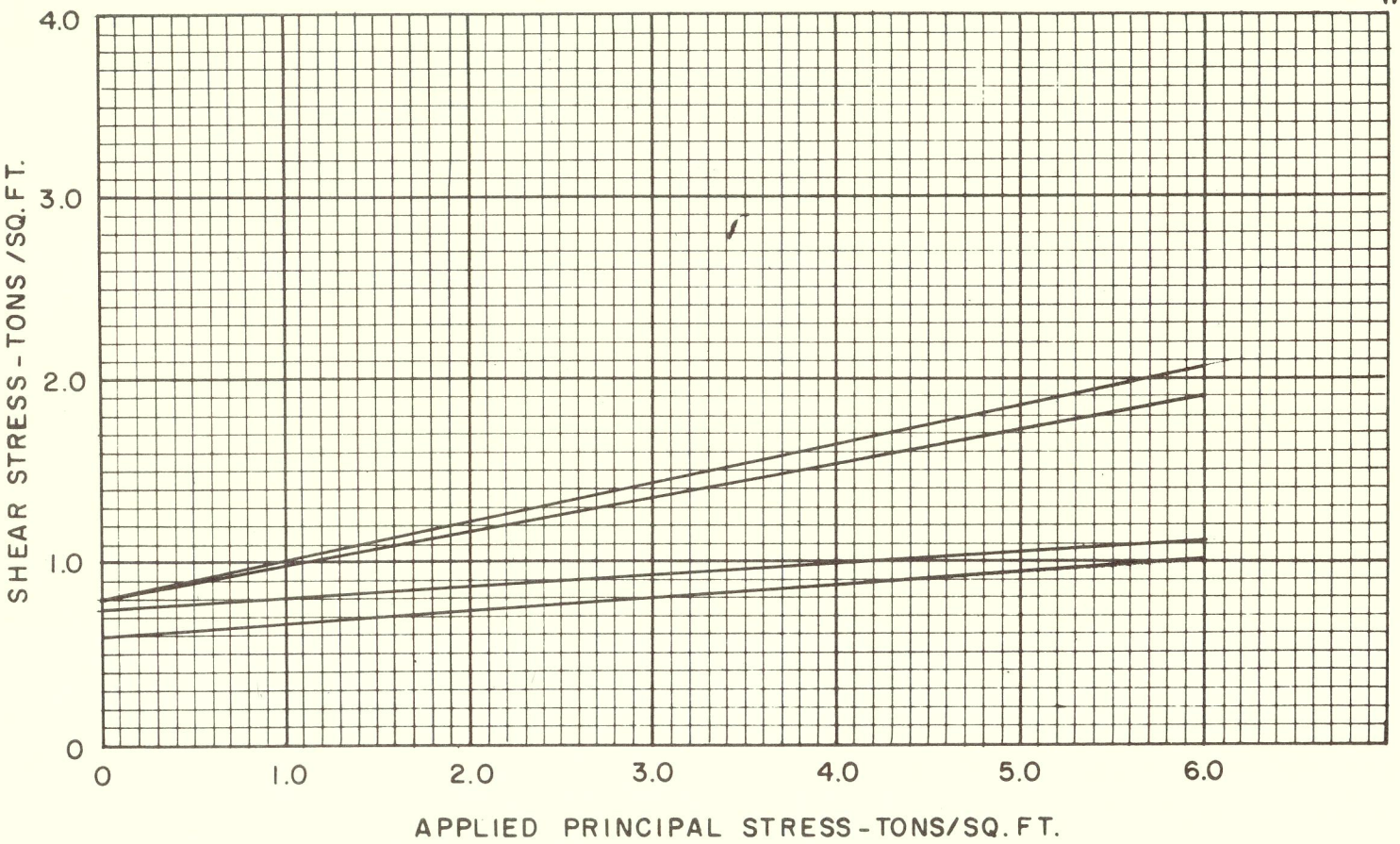


CHART NO 70

"R" TESTS

WEST BANK BORROW

COMPOSITE

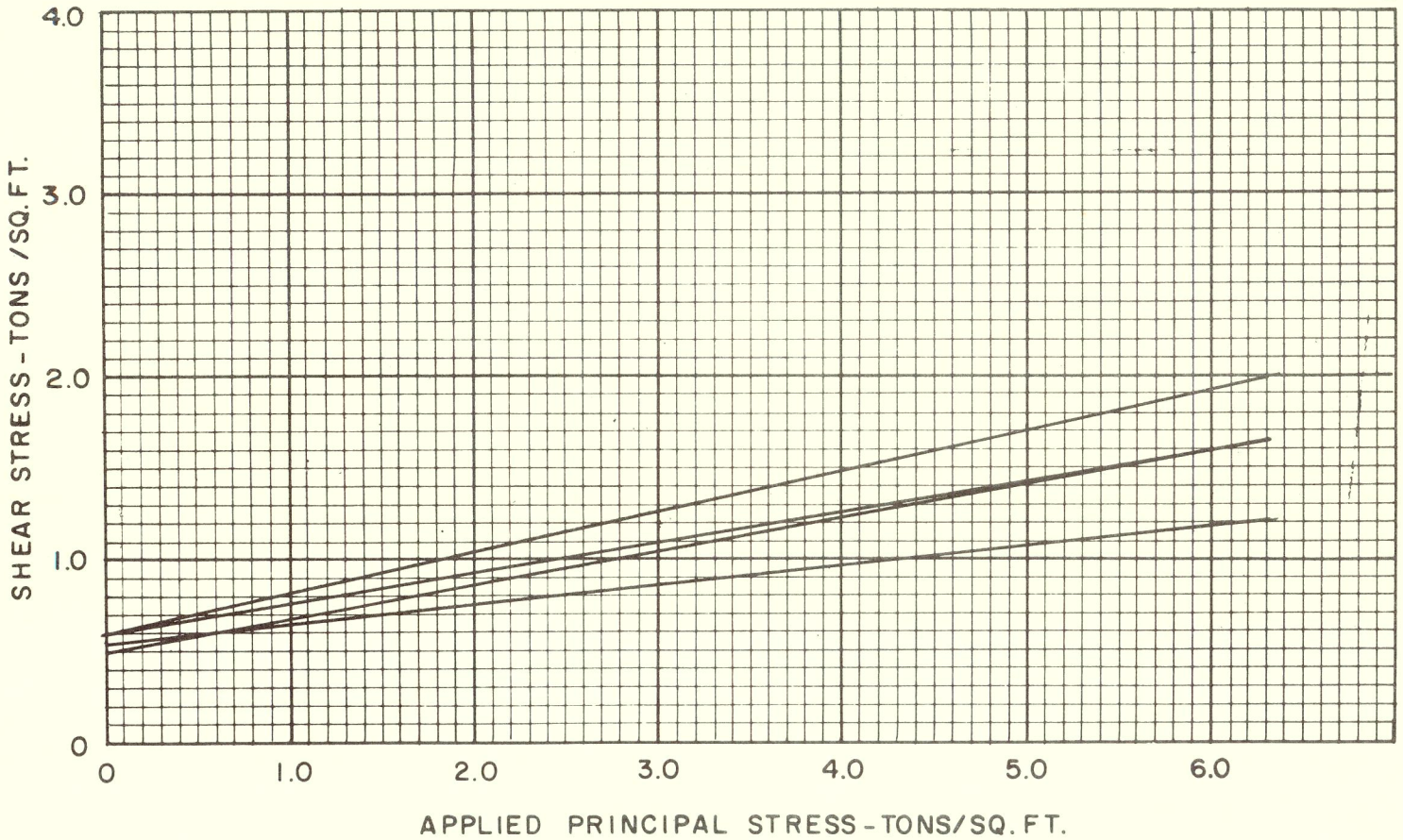


CHART NO. 17

"S" TESTS

WEST BANK BORROW

COMPOSITE

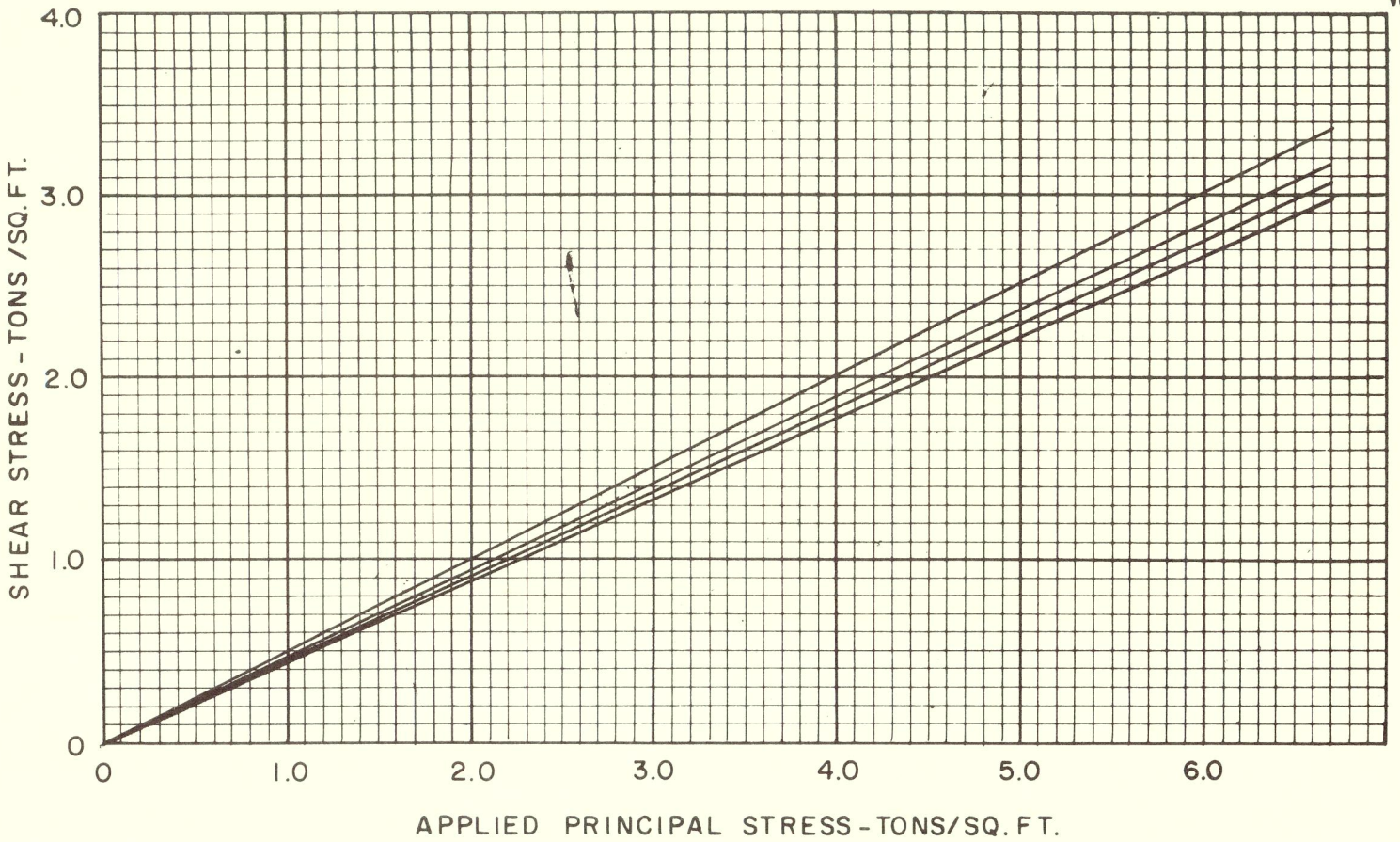
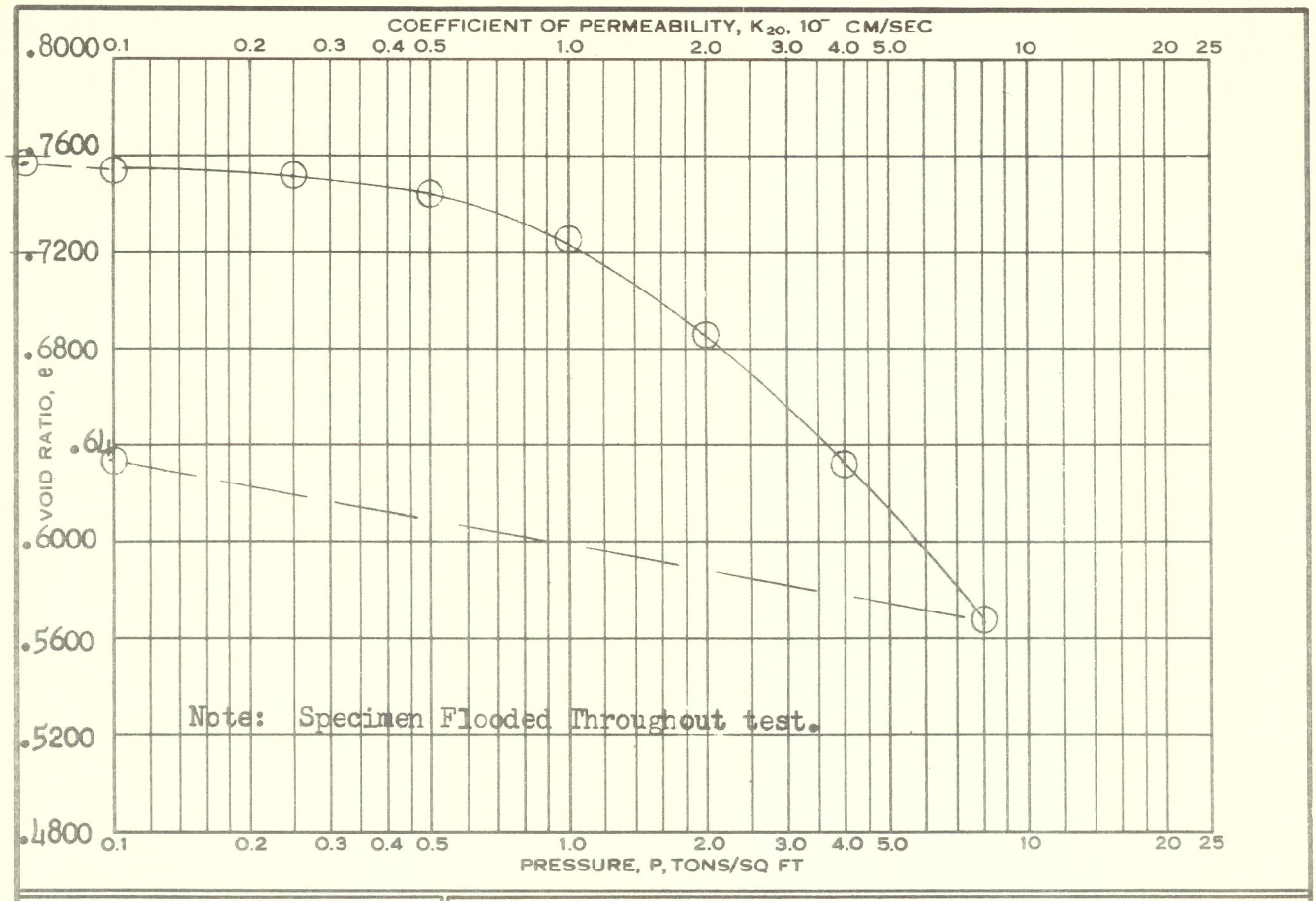


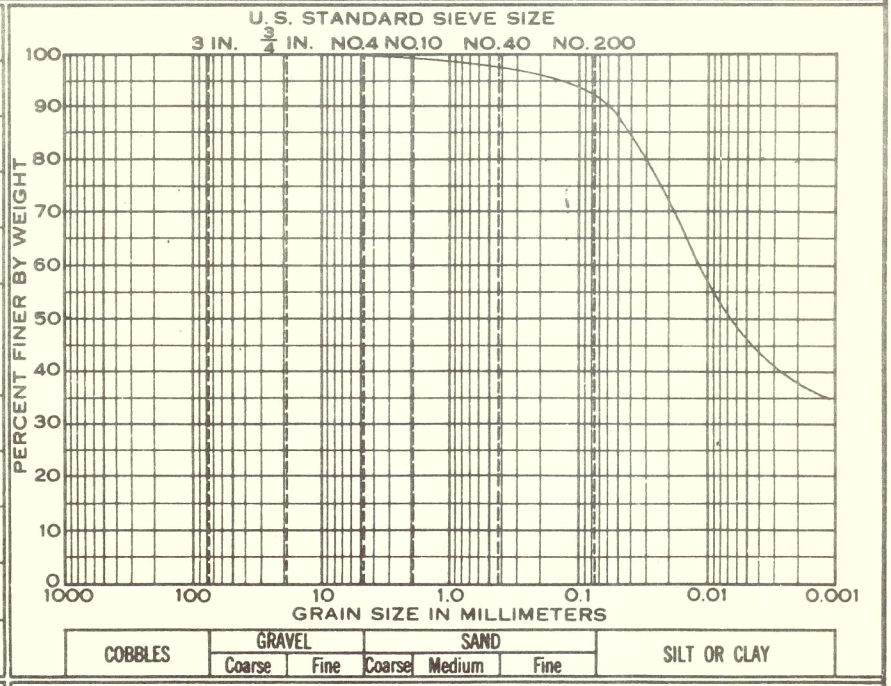
CHART NO 79



REQ. NO. 20-64-F & M
W.O. NO. 1907

TEST DATA

Type of Specimen	Remolded
Overburden Pressure, P_0	Tons/Sq Ft
Preconsol Pressure, P_c	Tons/Sq Ft
Compression Index, C_c	
Permeability at Initial e	K_{20} _____ x 10^{-} Cm/Sec _____ Ft/Min
Initial Ht. 1.25 in.	Diam. 4.43 in.
Initial Saturation, S_0 %	83.9
Final Saturation, S_f %	100.0
Initial Dry Density Lbs/Cu Ft	95.8
Initial Water Content, W_0 %	23.6



Remarks: 1. Specimen requested to be remolded at 24% (4% above optimum) moisture content to 95.5 pcf (95% of Max. std Proctor) density.
2. Avg Field Moist.=22.4%

Classification Brown lean clay(CL)

LL 49	G 2.70
PL 23	D_{10} -

Project Millers Ferry Dam

Lab. No. 202/362

Area West Bank Borrow

Boring No. WBB | Sample No. Composite

Elev. or Depth 0.0'-10.0' | Date 19 November 1963

CONSOLIDATION TEST REPORT

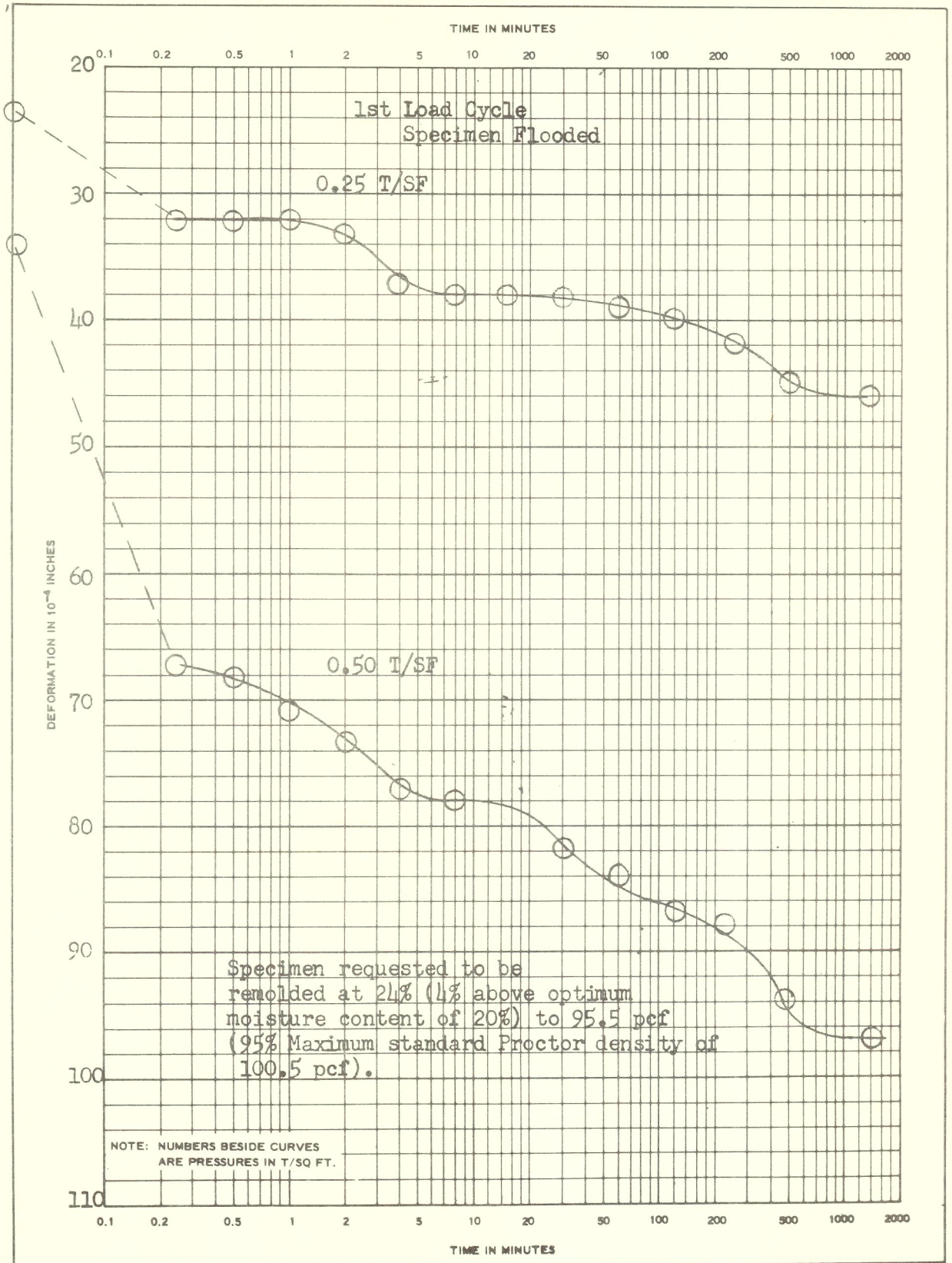
U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

ENG FORM 1 DEC 51 2090

CHART NO. 73

REQ. NO. 20-64-F & M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project Millers Ferry Dam			
Area West Bank Borrow		Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth 0.0'-10.0'	Date 19 November 1963

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

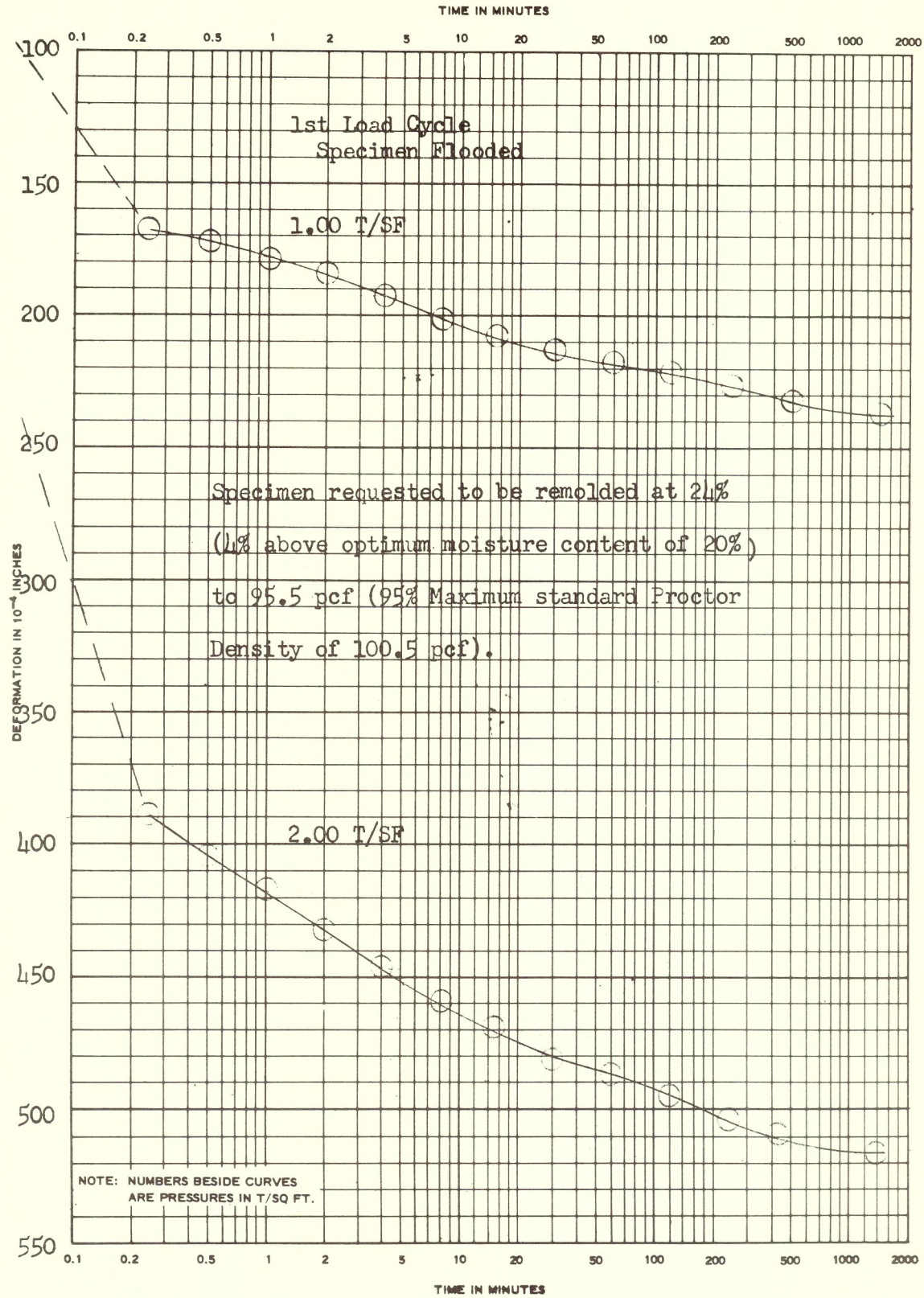
(TRANSLUCENT)

C 3427

CHART NO. 74

REQ. NO. 20-64-F & M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project	Millers Ferry Dam		
Area	West Bank Borrow	Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth ☒ 0.0'-10.0'	Date 19 November 1963

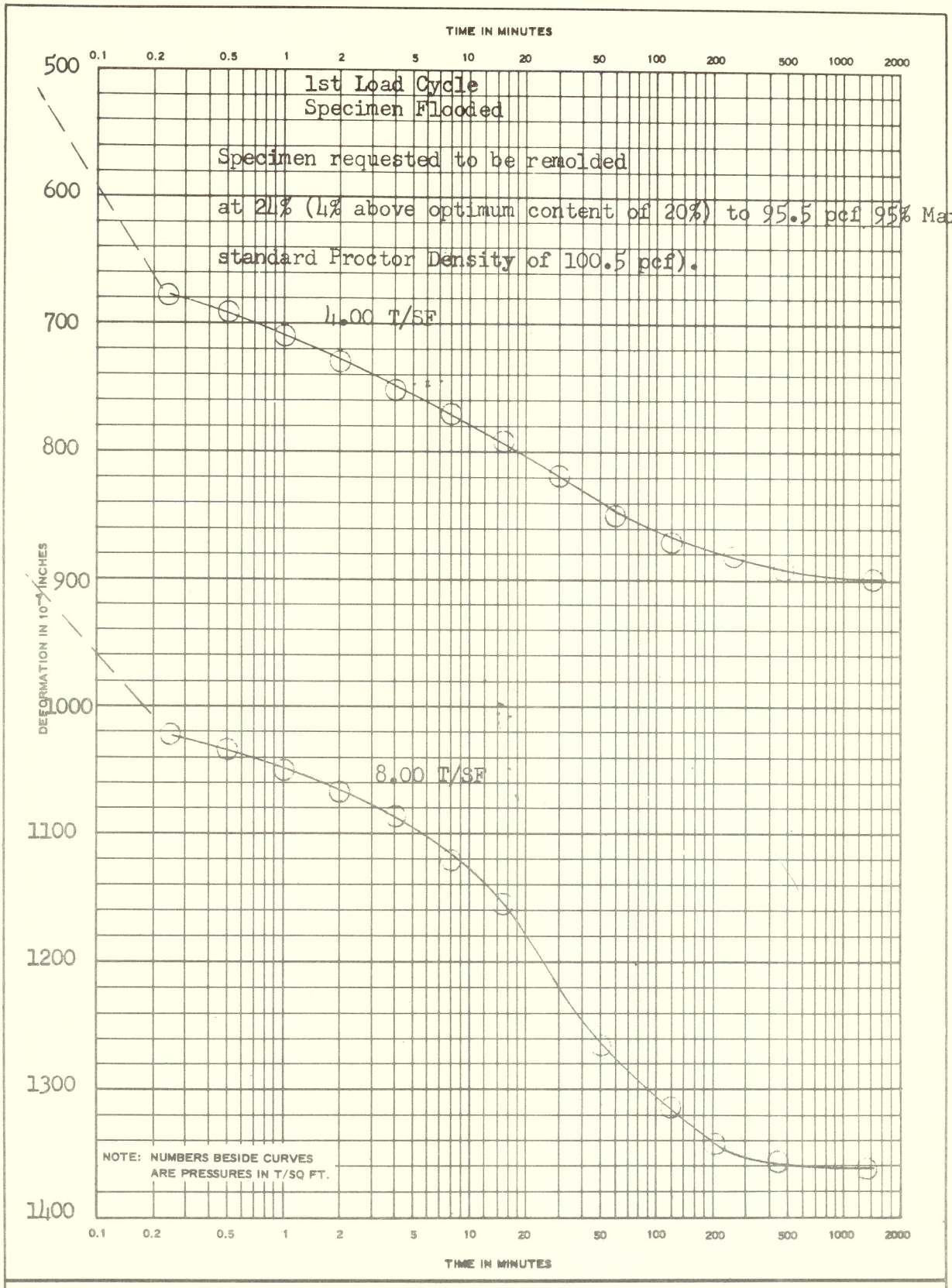
ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

CHART NO. 75

REQ. NO. 20-64-F & M
W.O. NO. 1907



U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

Project	Millers Ferry Dam		
Area	West Bank Borrow	Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth 0.0'-10.0'	Date 19 November 1963

ENG FORM 1 MAY 63 2088
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

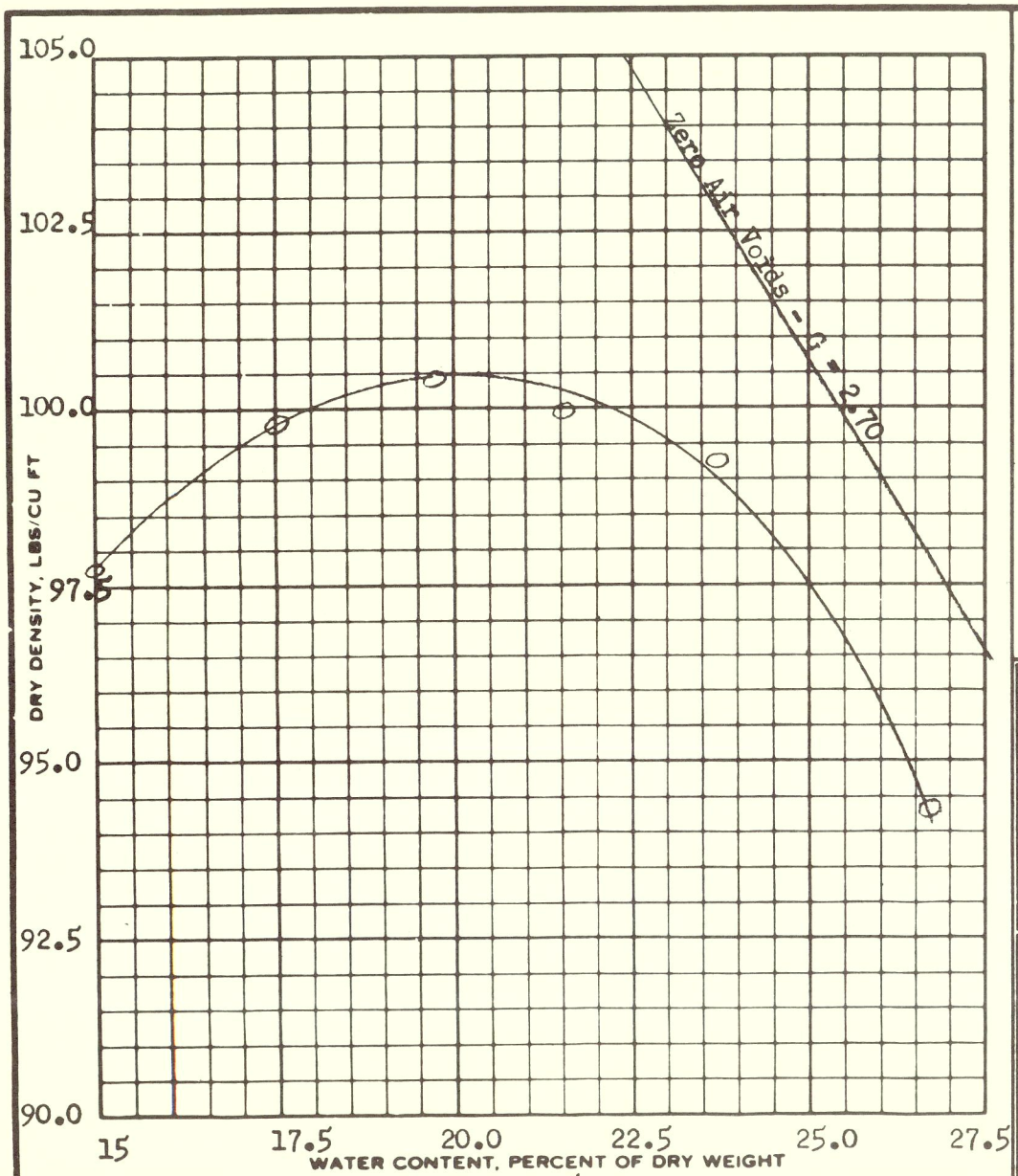
(TRANSLUCENT)

C 3427

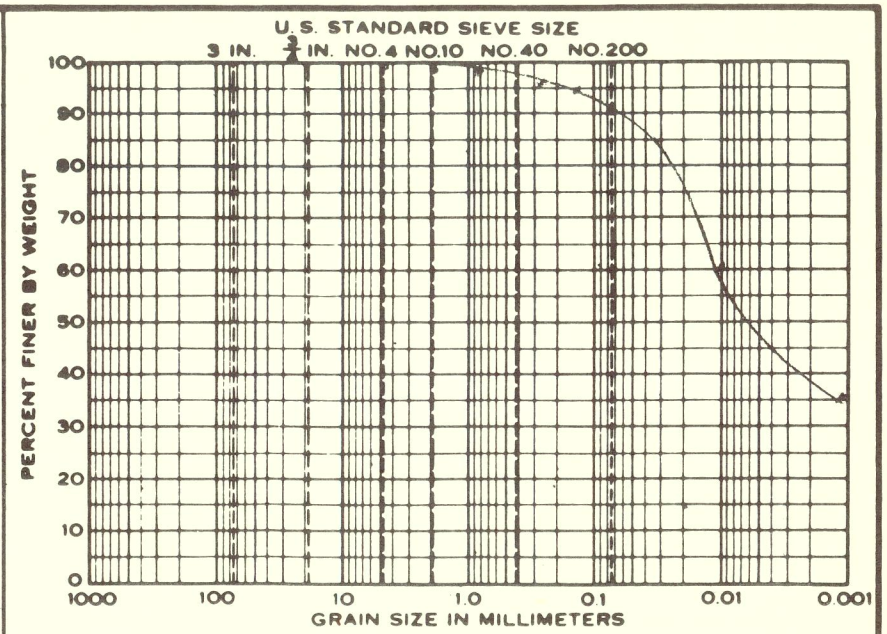
CHART NO. 76

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F&M
W.O. NO. 1907



Standard Compaction - 1/30 Cu. Ft. Mold
Material not reused



COBBLES	GRAVEL		SAND			SILT OR CLAY
	Coarse	Fine	Coarse	Medium	Fine	

Sample No.	Elev or Depth	Classification	G	LL	PL
		Brown lean clay-CL	2.70	49	23
	Ave:	Field moisture -	22.4	%	

Sample No.					
Optimum Water Content	%	20.0			
Max Dry Density	Lbs/Cu Ft	100.5			
Optimum Water Content Corr for +	%				
Max Density Corr for +	Lbs/Cu Ft				

Project MILLERS FERRY DAM

Area West Bank Borrow

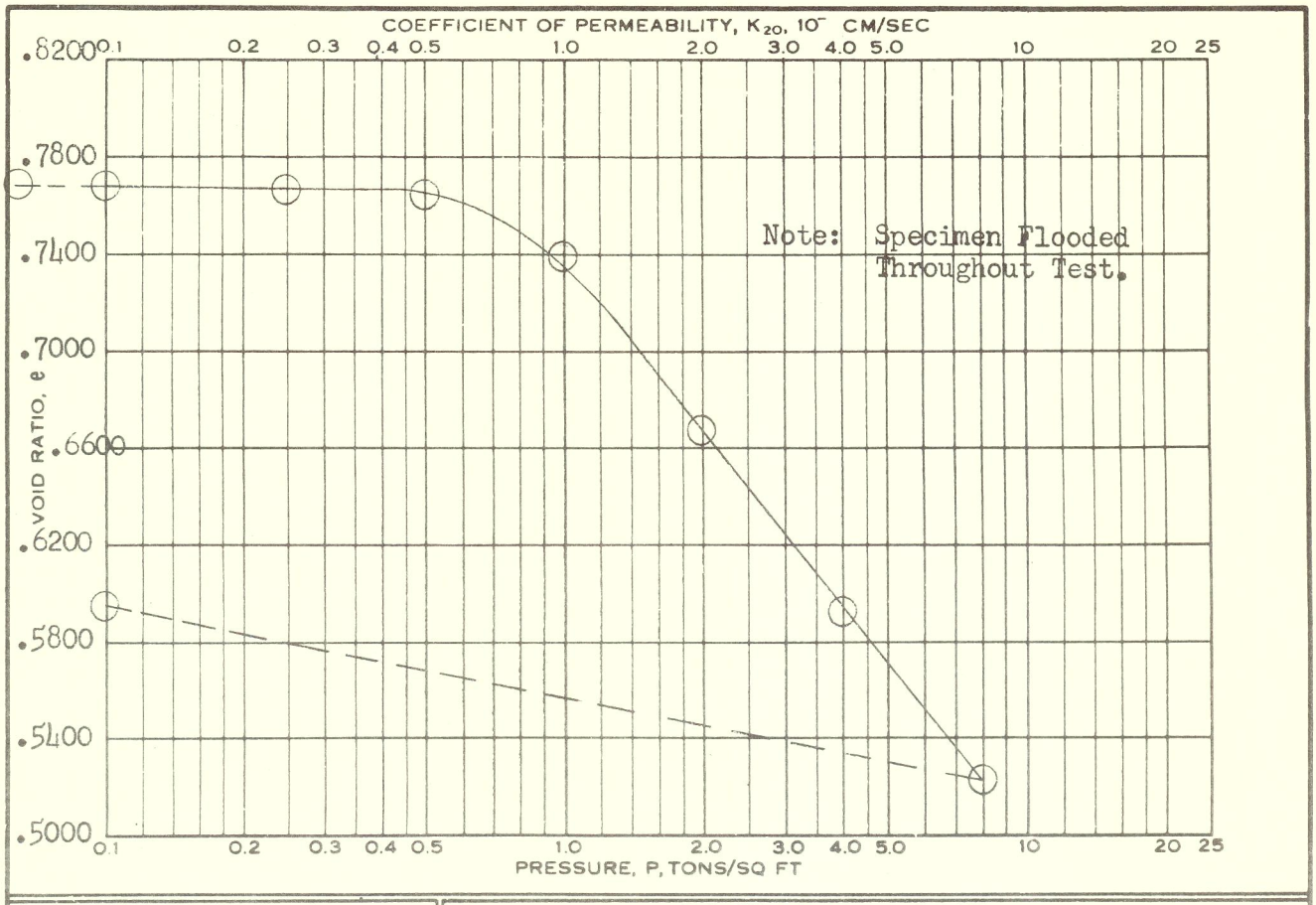
Boring No. WBB- Composite | Lab Sample No. 202/362

Depth 0.0' - 10.0' | Date 30 October 1963

COMPACTION TEST REPORT

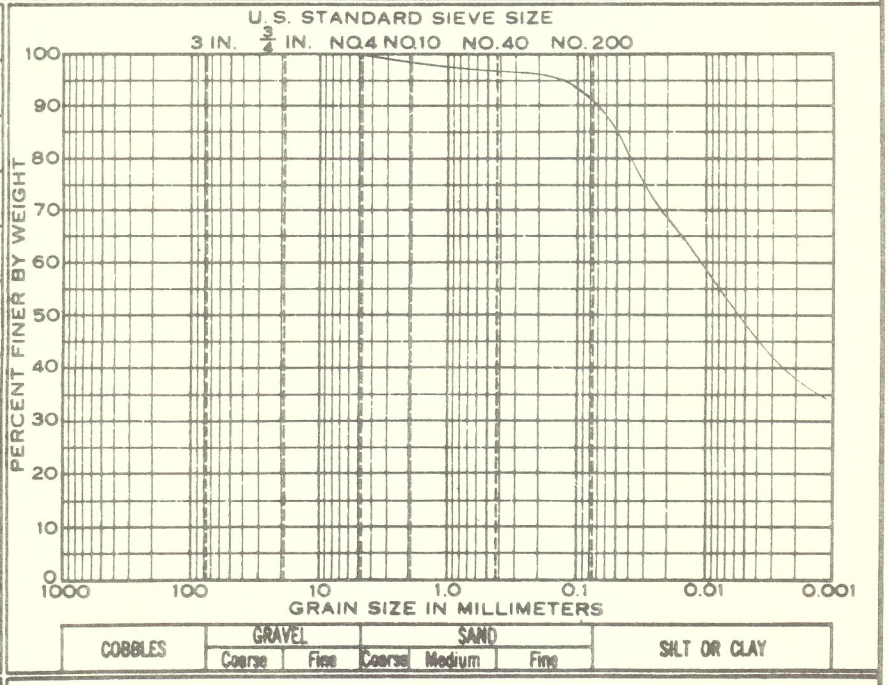
CHART NO. 77

ENG FORM 1 DEC 52 2081



TEST DATA

Type of Specimen	Remolded
Overburden Pressure, P_0	Tons/Sq Ft
Preconsol Pressure, P_c	Tons/Sq Ft
Compression Index, C_c	
Permeability at Initial e	K_{20} _____ x 10^{-} Cm/Sec; _____ Ft/Min
Initial Ht. 1.25 in.	Diam. 4.43in.
Initial Saturation, S_0 %	71.0
Final Saturation, S_F %	100.0
Initial Dry Density Lbs/Cu Ft	95.4
Initial Water Content, W_0 %	20.1



Remarks: 1. Specimen requested to be remolded at 20% (optimum) moisture content to 95.5 pcf (95% Max. Standard Proctor) dry density.

2. Average field moisture content = 22.4%.

Classification	Brown lean clay(CL)
LL 49	G 2.70
PL 23	D_{10} -

Project Millers Ferry Dam

Lab. No. 202/362

Area West Bank Borrow

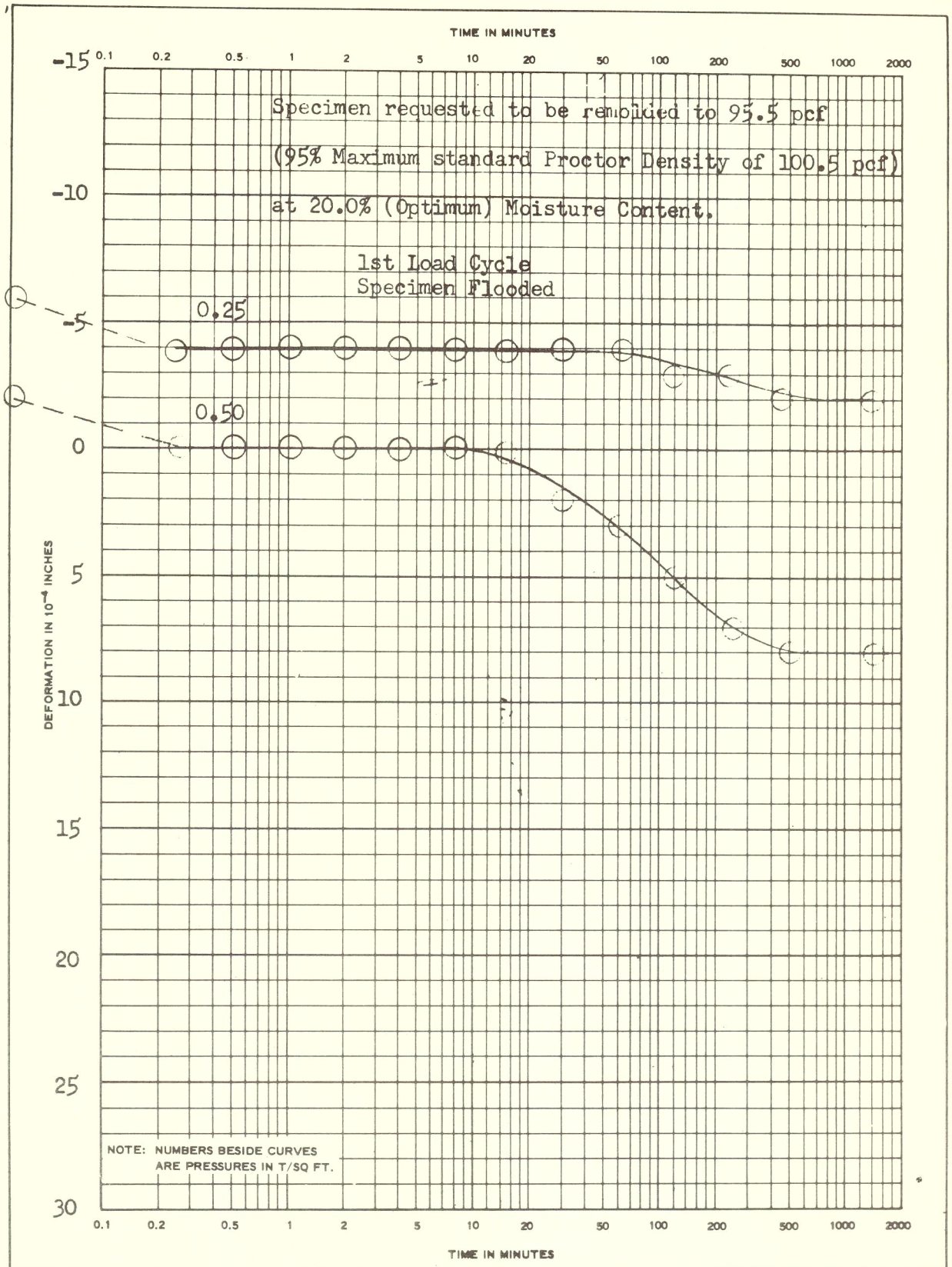
Boring No. WBB — Sample No. Composite

~~Elevation~~ Depth 0.0'-10.0' — Date 19 November 1963

CONSOLIDATION TEST REPORT

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 20-64-F & M
W.O. NO. 1907



Project	Millers Ferry Dam			
Area	West Bank Borrow	Lab. No. 202/362		
Boring No. WBB	Sample No. Composite	Depth ~~EX~~ 0.0'-10.0'	Date 19 November 1963	

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

C 3/27

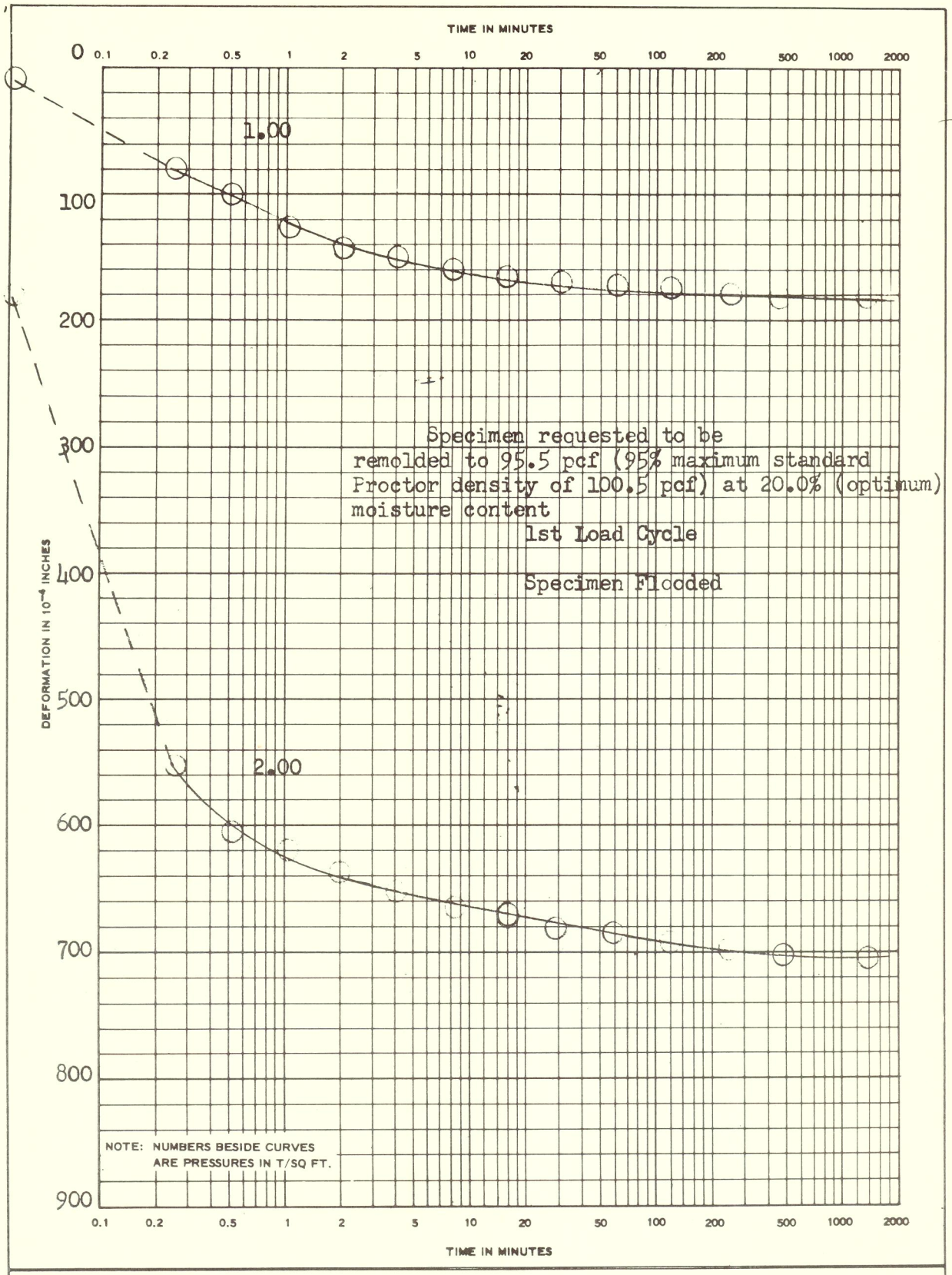
REQ. NO. 20-64-F & M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

CHART NO. 79

REG. NO. 20-64-F & M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project	Millers Ferry Dam		
Area	West Bank Borrow	Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth 0.0'-10.0'	Date 19 November 1963

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

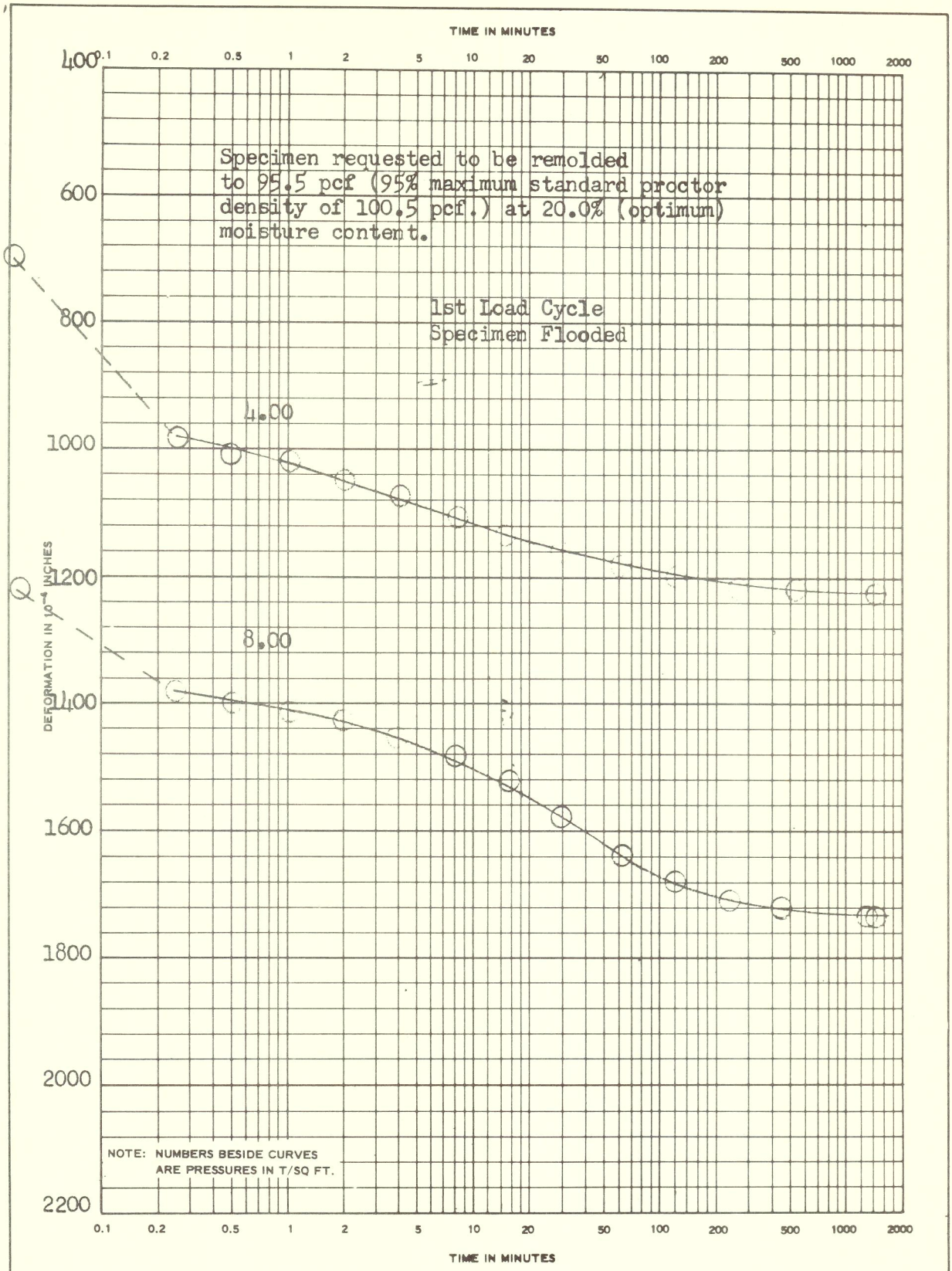
(TRANSLUCENT)

C 3427

CHART NO. 80

REQ. NO. 20-64-F & M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project Millers Ferry Dam

Area West Bank Borrow Lab. No. 202/362

Boring No. WBB | Sample No. Composite | Depth ~~EX~~ 0.0'-10.0' | Date 19 November 1963

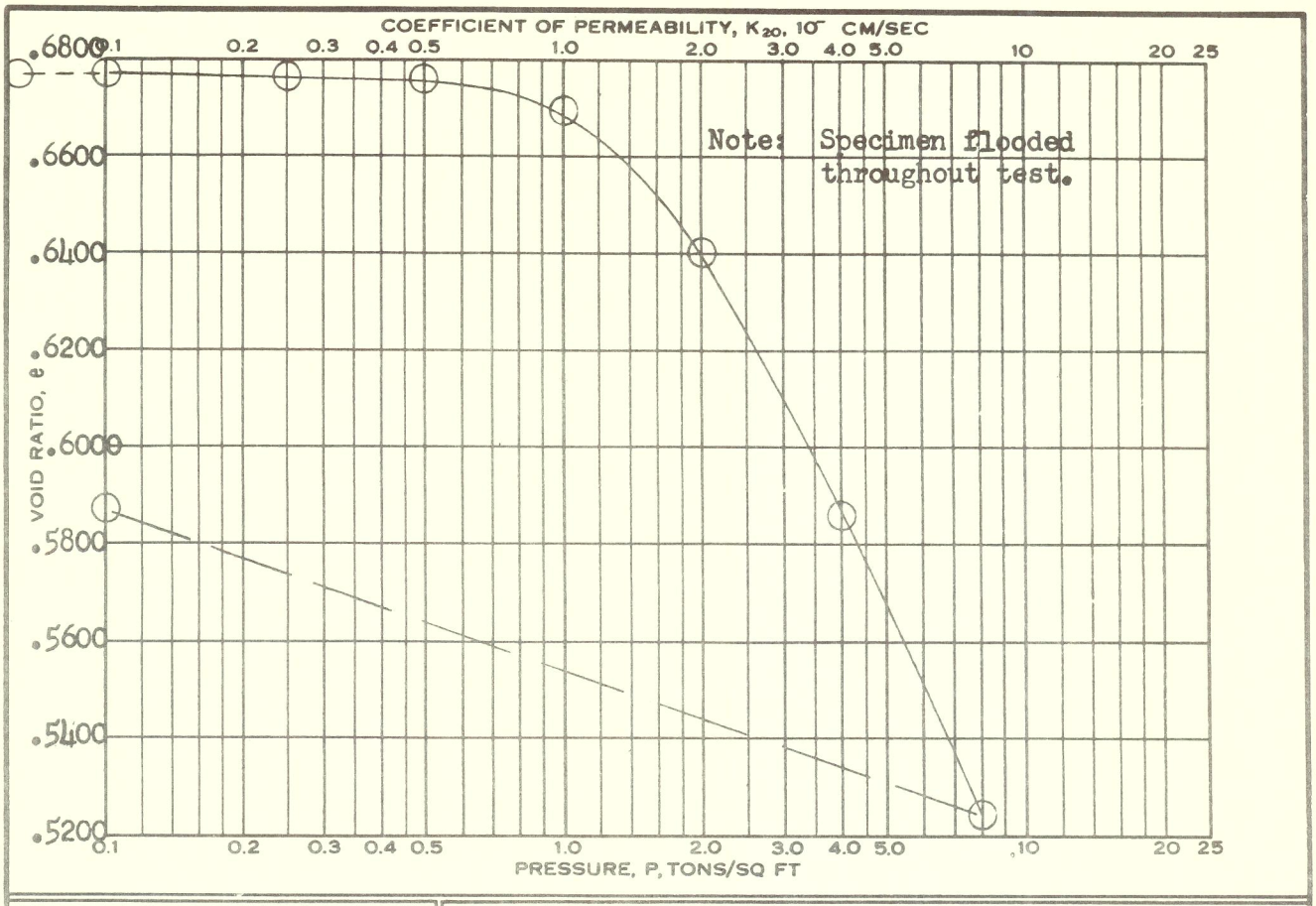
ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

C 3/27

CHART NO. 81

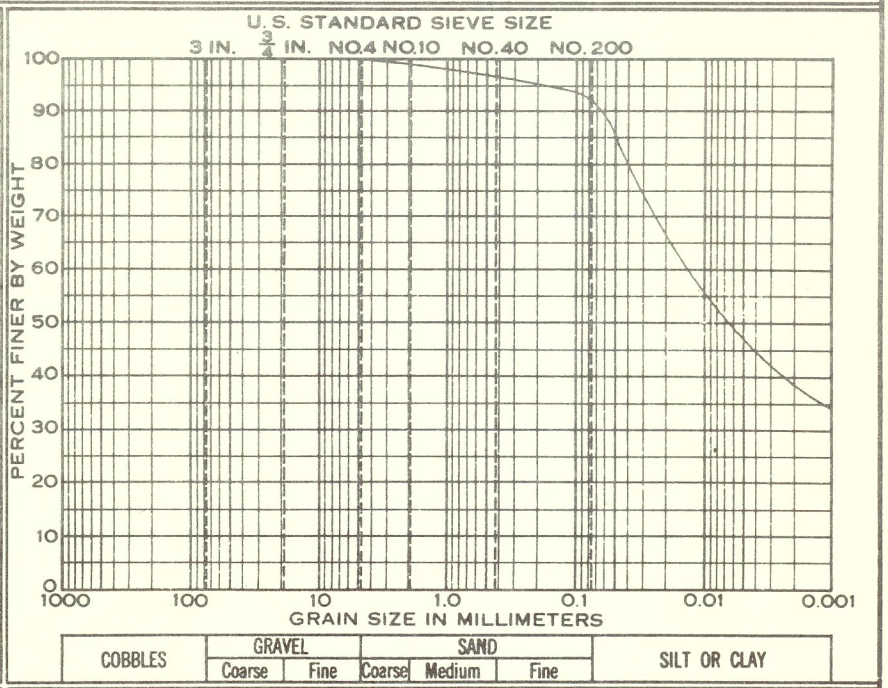


REQ. NO. 20-64-F & M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

TEST DATA

Type of Specimen	Remolded
Overburden Pressure, P_0	Tons/Sq Ft
Preconsol Pressure, P_c	Tons/Sq Ft
Compression Index, C_c	
Permeability at Initial e	K_{20} _____ x 10^{-} Cm/Sec _____ Ft/Min
Initial Ht. 1.25 in.	Diam 4.43 in.
Initial Saturation, S_0 %	80.0
Final Saturation, S_F %	100.0
Initial Dry Density Lbs/Cu Ft	100.5
Initial Water Content, W_0 %	20.1



Remarks: 1. Specimen requested to be remolded at 20% (optimum) moisture content to 100.5 pcf (Max. Std Proctor) dry density.

2. Avg field moisture content = 22.4%

Classification Brown lean clay (CL)	
LL 49	G 2.70
PL 23	D_{10} -

Project Millers Ferry Dam

Lab. No. 202/362

Area West Bank Borrow

Boring No. WBB	Sample No. Composite
Elev or Depth 0.0'-10.0'	Date 19 November 1963

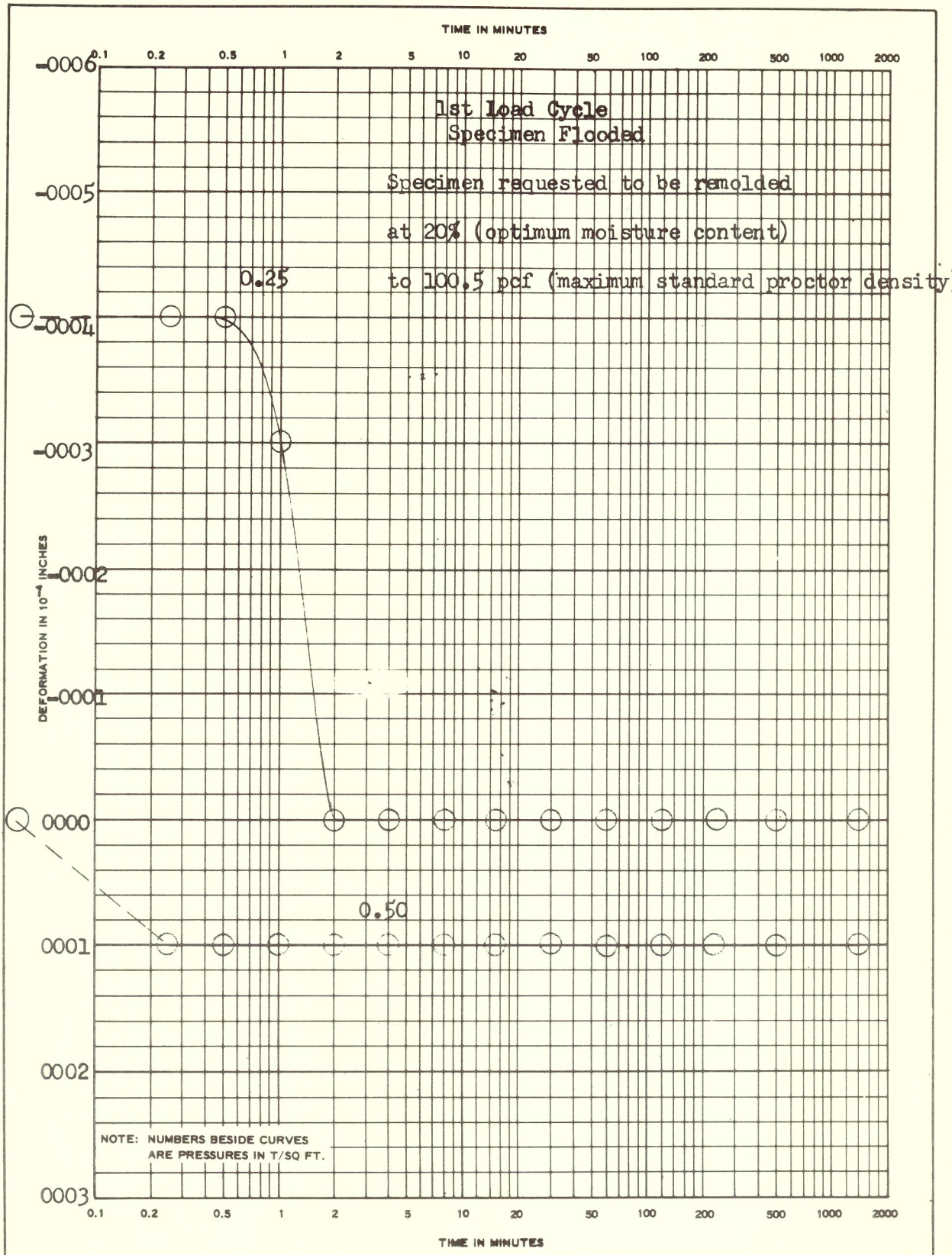
CONSOLIDATION TEST REPORT

ENG FORM 1 DEC 51 2090

CHART NO. 82

REQ. NO. 20-64- F & M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project	Millers Ferry Dam		
Area	West Bank Borrow	Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth 0.0'-10.0'	Date 19 November 1963

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

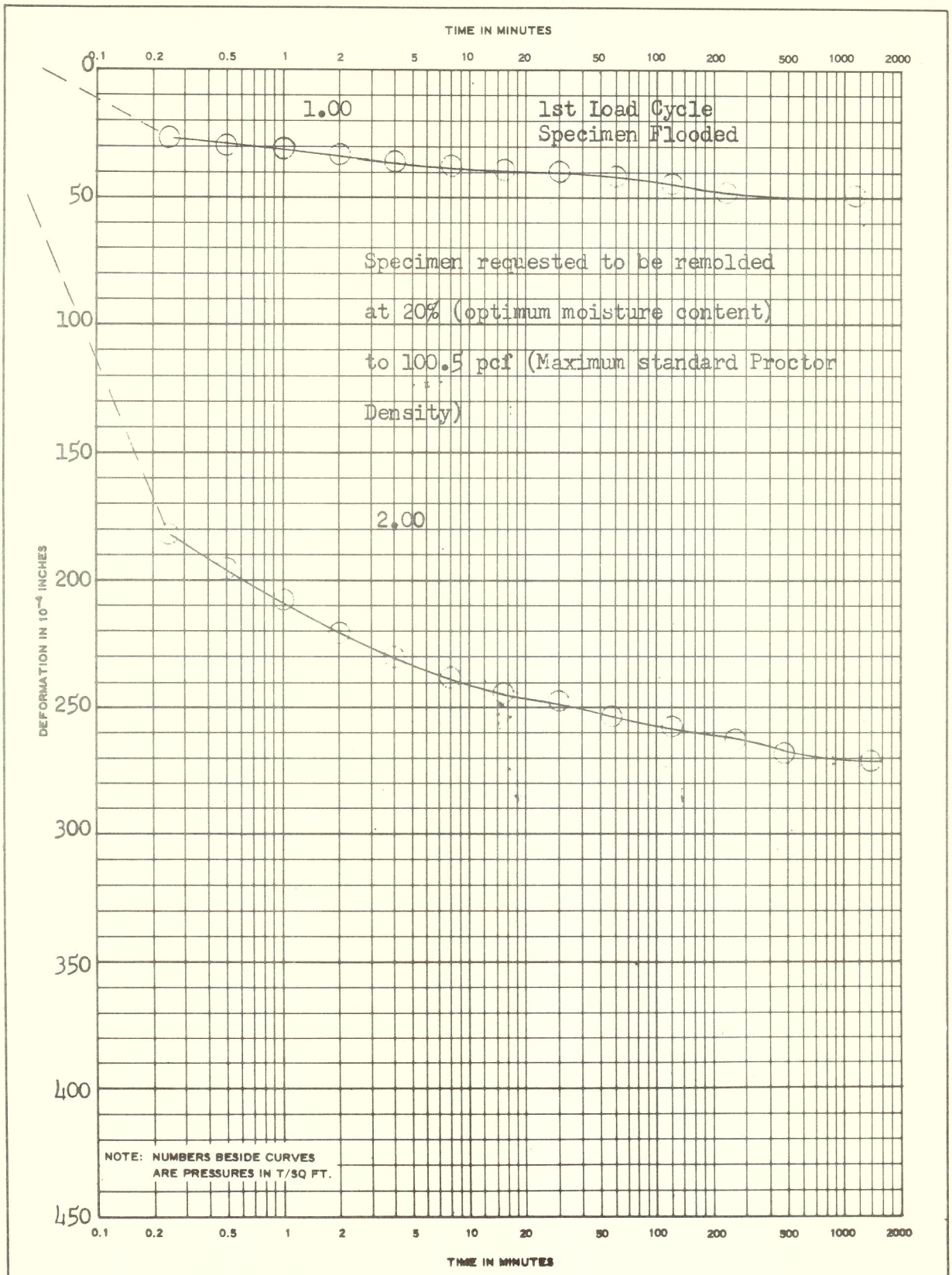
(TRANSLUCENT)

C 3427

CHART NO. 83

REQ. NO. 20-64-F & M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project	Millers Ferry Dam		
Area	West Bank Borrow	Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth XX 0.0'-10.0'	Date 19 November 1968

ENG FORM 1 MAY 63 2088
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

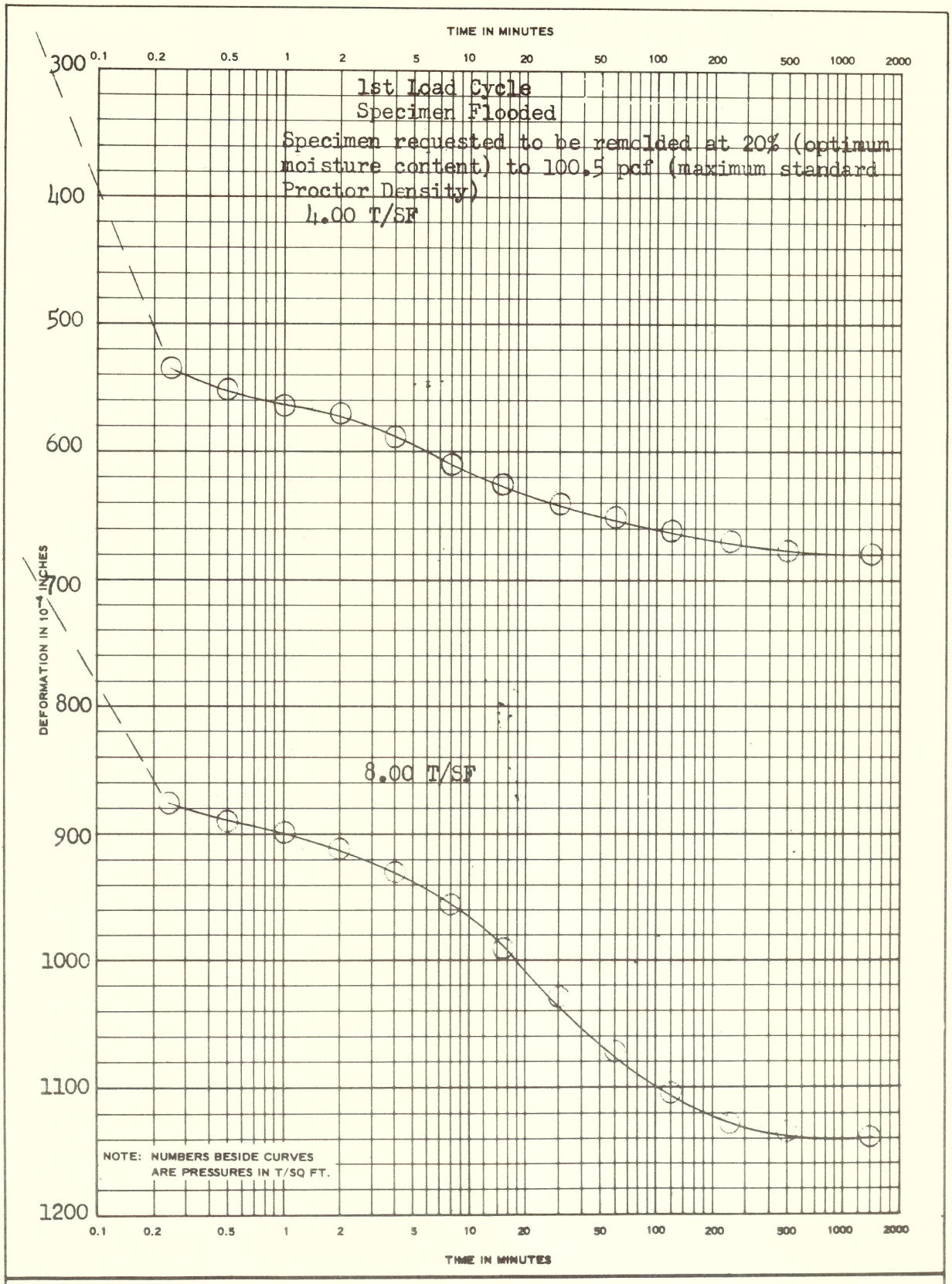
(TRANSLUCENT)

C 3227

CHART NO. 84

REQ. NO. 20-64-F & M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project	Millers Ferry Dam			
Area	West Bank Borrow		Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth ~~XX~~ 0.0'-10.0'		Date 19 November 1963

ENG FORM 1 MAY 63 2088
PREVIOUS EDITIONS ARE OBSOLETE.

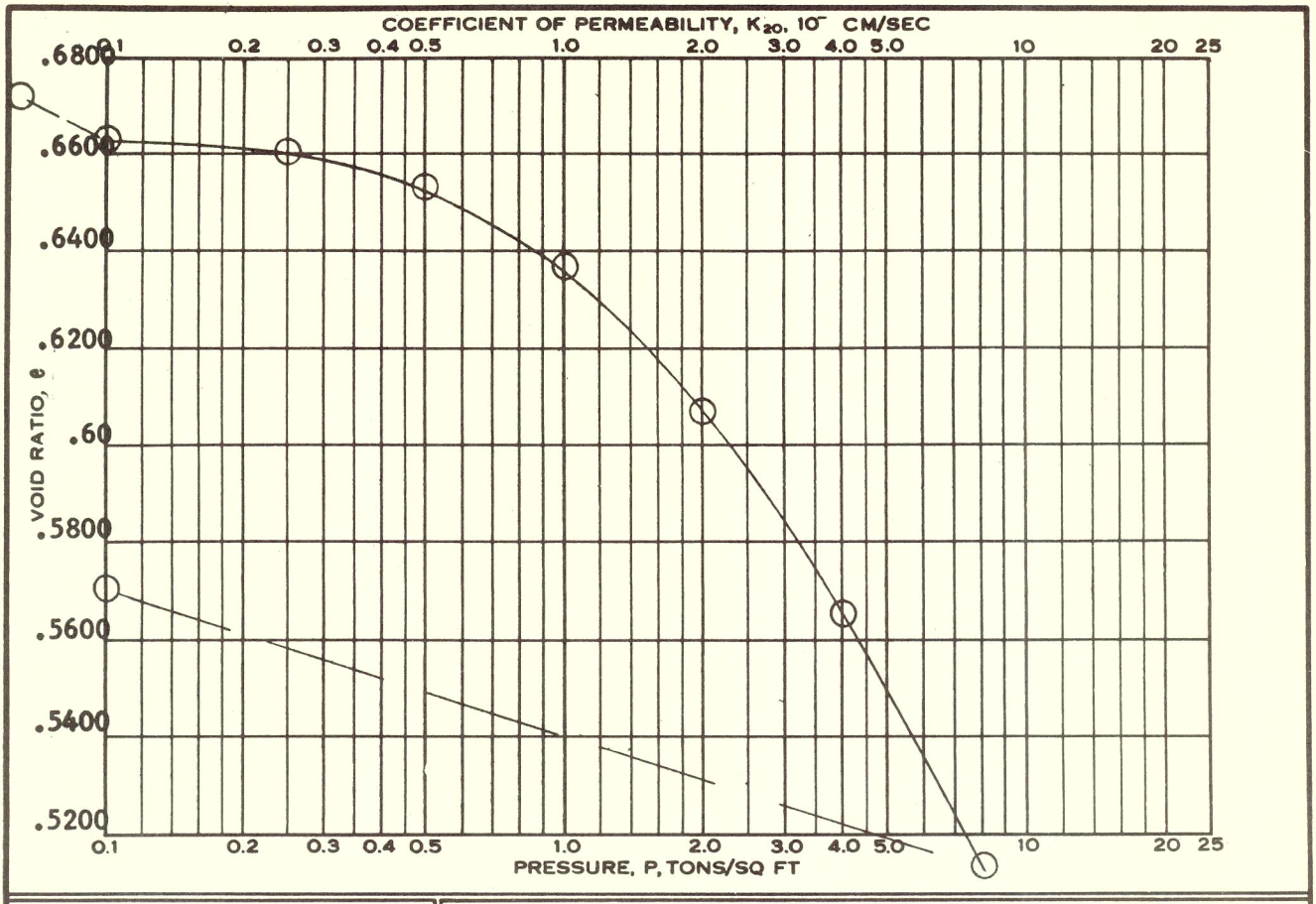
CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

C 3427

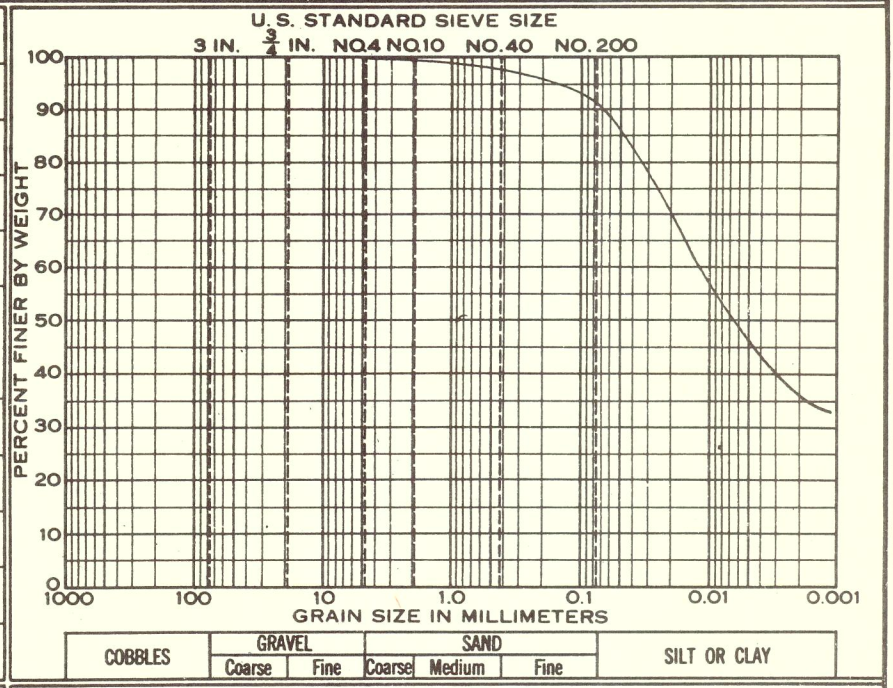
CHART NO. 85

REQ. NO. 20-64-F&M
WORK ORDER NO. 1907



TEST DATA

Type of Specimen Remolded	
Overburden Pressure, P_0 Tons/Sq Ft	
Preconsol Pressure, P_c Tons/Sq Ft	
Compression Index, C_c	
Permeability at Initial e K_{20} _____ x 10^{-} Cm/Sec _____ Ft/Min	
Initial Ht. 1.25 in.	Diam 4.43 in.
Initial Saturation, S_0 %	95.2
Final Saturation, S_F %	100.0
Initial Dry Density Lbs/Cu Ft	100.7
Initial Water Content, W_0 %	23.7



Remarks: 1. Specimen requested to be remolded at 24.0% (4% above optimum) moisture content of 20.0% to 100.5 pcf (100% Max. Stnd. Proctor density).
2. Specimen flooded throughout test.
3. Avg. Field Moisture = 22.4%

Classification Brown lean clay(CL)

LL	49	G	2.70
PL	23	D_{10}	-

Project MILLERS FERRY DAM

LAB. NO. 202/362

Area West Bank Borrow

Boring No. WBB | Sample No. Composite

Depth 0.0' - 10.0' | Date 12 November 1963

CONSOLIDATION TEST REPORT

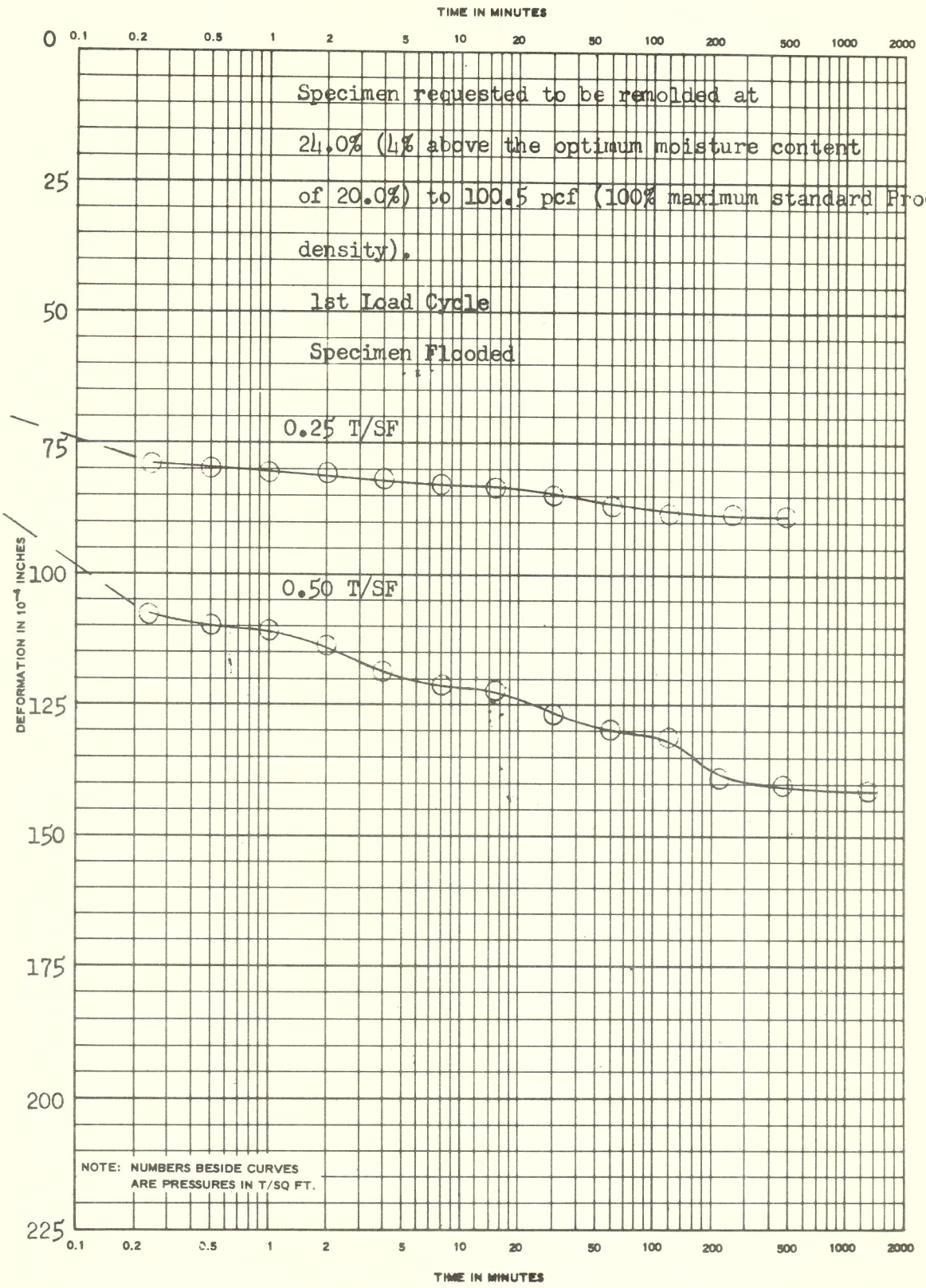
U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA

ENG FORM 1 DEC 51 2090

CHART NO. 86

GPO 83-62548

R.F.Q. NO. 20-64-F&M
W.O. NO. 1907



U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

Project Millers Ferry Dam			
Area West Bank Borrow		Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth 0.0'-10.0'	Date 13 November 1963

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

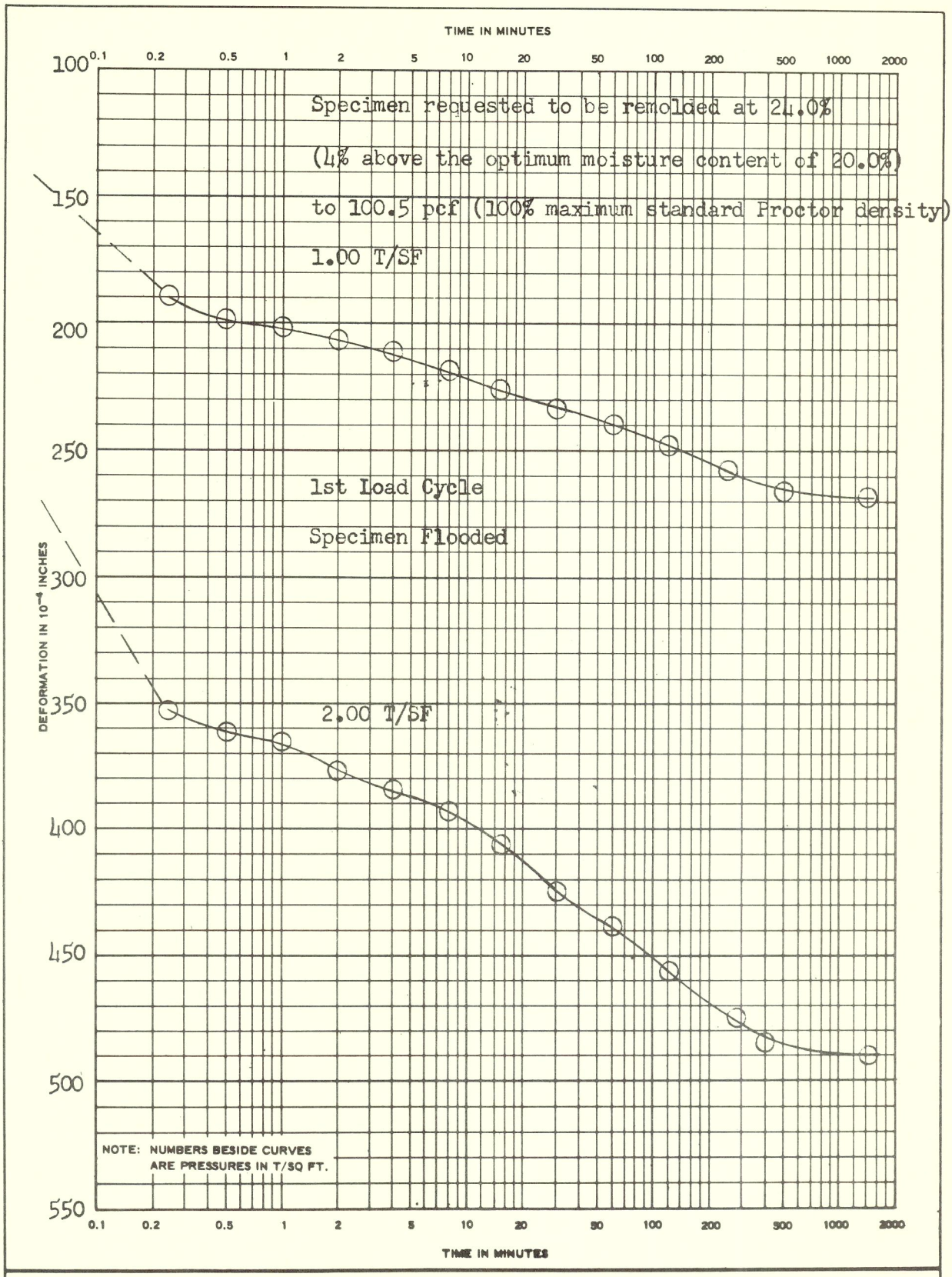
(TRANSLUCENT)

C 3427

CHART NO. 87

REQ. NO. 20-64-F&M
W.O. NO. 1907

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project Millers Ferry Dam			
Area West Bank Borrow		Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth 0.0'-10.0'	Date 13 November 1963

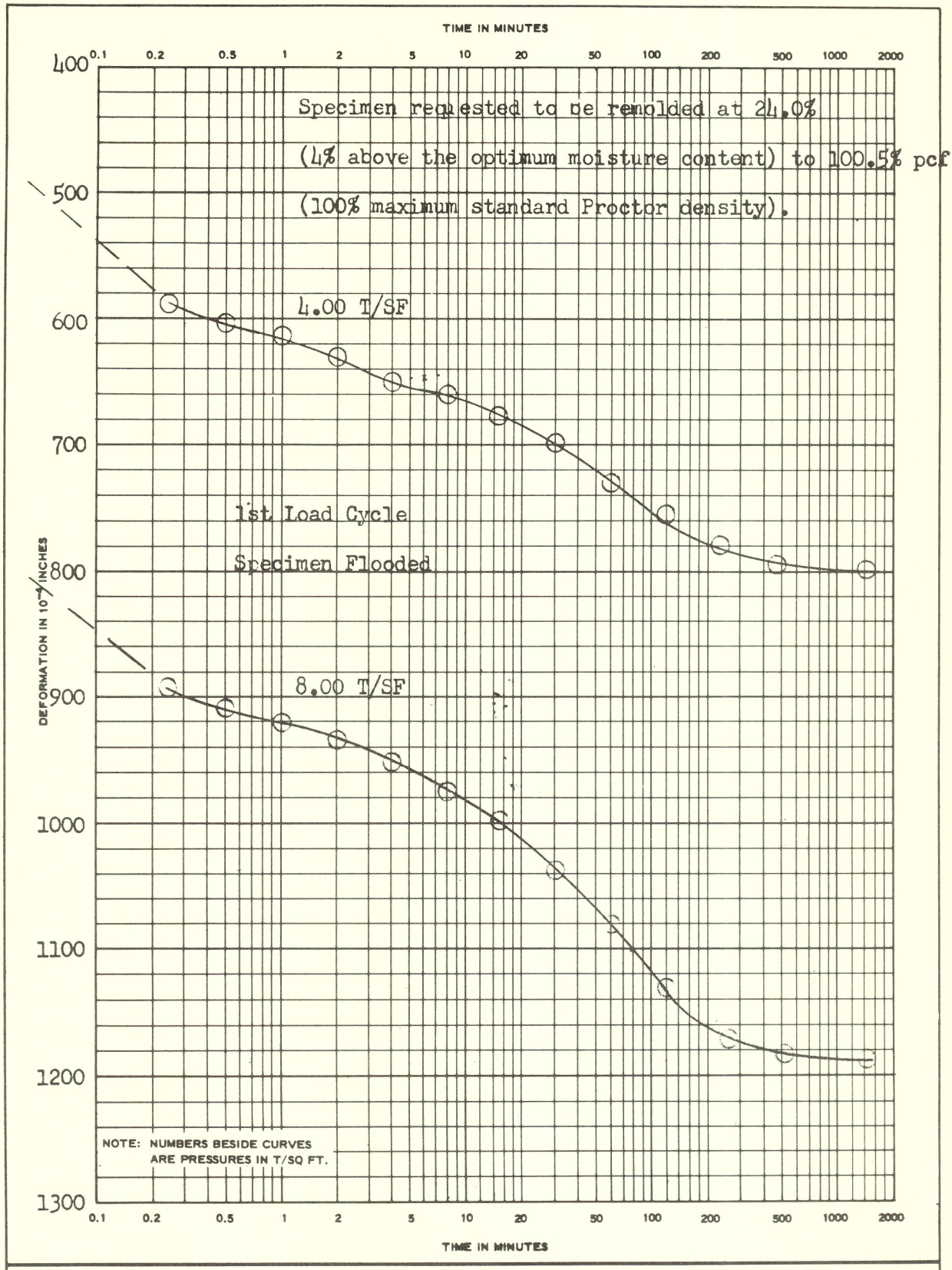
ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

CHART NO. 88

REQ. NO. 20-64-F&M
W.O. NO. 1907



U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

Project Millers Ferry Dam			
Area West Bank Borrow		Lab. No. 202/362	
Boring No. WBB	Sample No. Composite	Depth 0.0'-10.0'	Date 13 November 1963

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

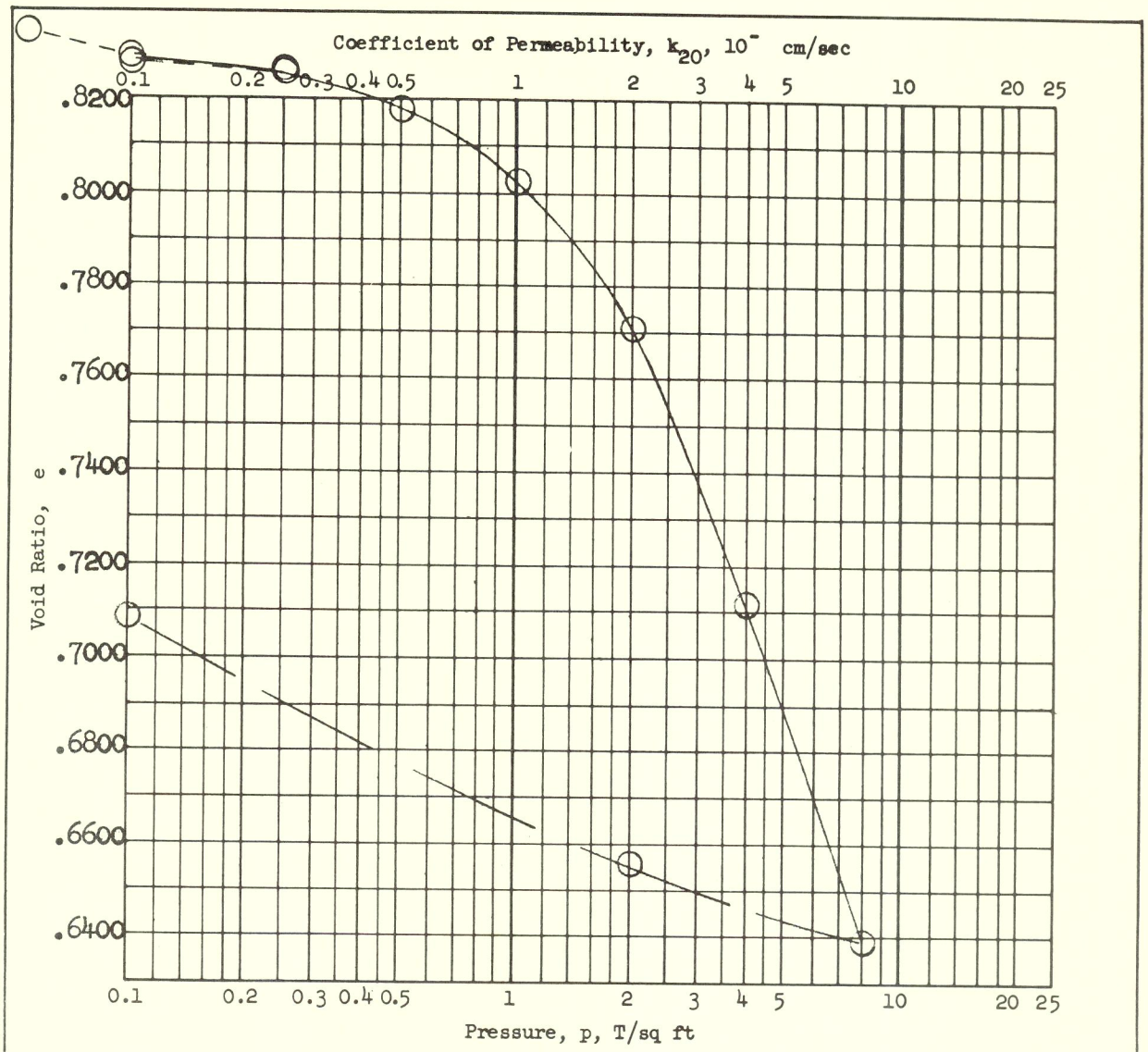
(TRANSLUCENT)

C 3427

CHART NO. 89

Reqn. No. 44-64-FSM
W. O. No. 2394

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA

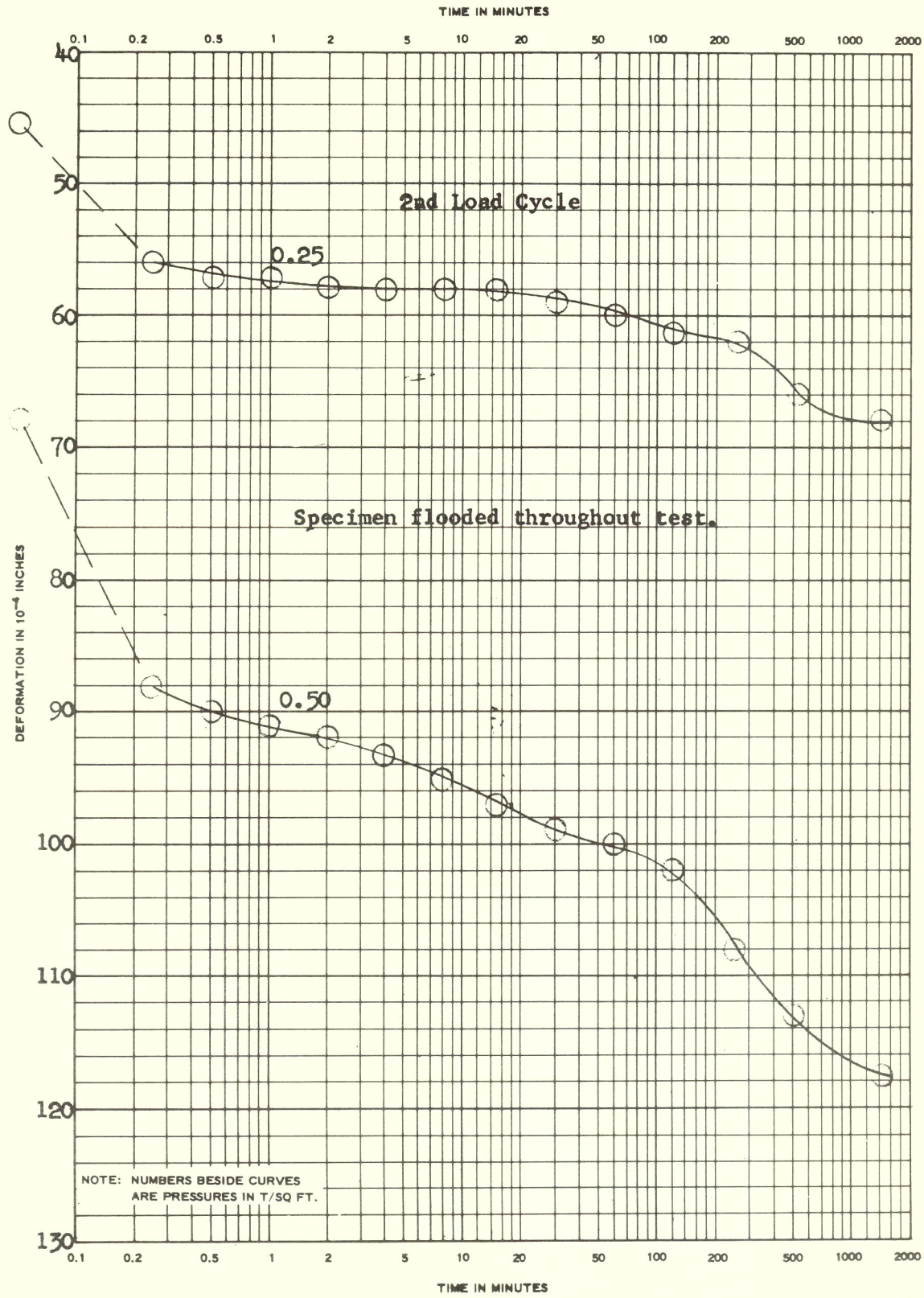


Type of Specimen Undisturbed		Before Test		After Test	
Diam 4.00 in.	Ht 1.25 in.	Water Content, w_o	23.7 %	w_f	29.6 %
Overburden Pressure, p_o T/sq ft		Void Ratio, e_o	.836	e_f	.776
Preconsol. Pressure, p_c T/sq ft		Saturation, S_o	74.2 %	S_f	100.0 %
Compression Index, C_c		Dry Density, γ_d	89.0 lb/ft^3		
Classification Brown inorganic silt, high liquid limit (MH), w/gravel		k_{20} at e_o =	$\times 10^{-}$ cm/sec		
LL 63	G_s 2.62	Project MILLERS FERRY			
PL 32	D_{10} --	Lab. No. 202/375			
Remarks 1. See gradation curve on ENG Form 2087.		Area West Bank Road			
		Boring No. WBR-3		Sample No. 1	
2. Specimen flooded throughout test.		Depth 1.0' - 3.0'		Date 8 June 1964	

CONSOLIDATION TEST REPORT

ENG FORM 1 MAY 63 2090 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

CHART NO. 3424 90



Project MILLERS FERRY

Area West Bank Road Lab. No. 202/375

Boring No. WBR-3 | Sample No. 1 | Depth 1.0' - 3.0' | Date 8 June 1964

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

C 3627

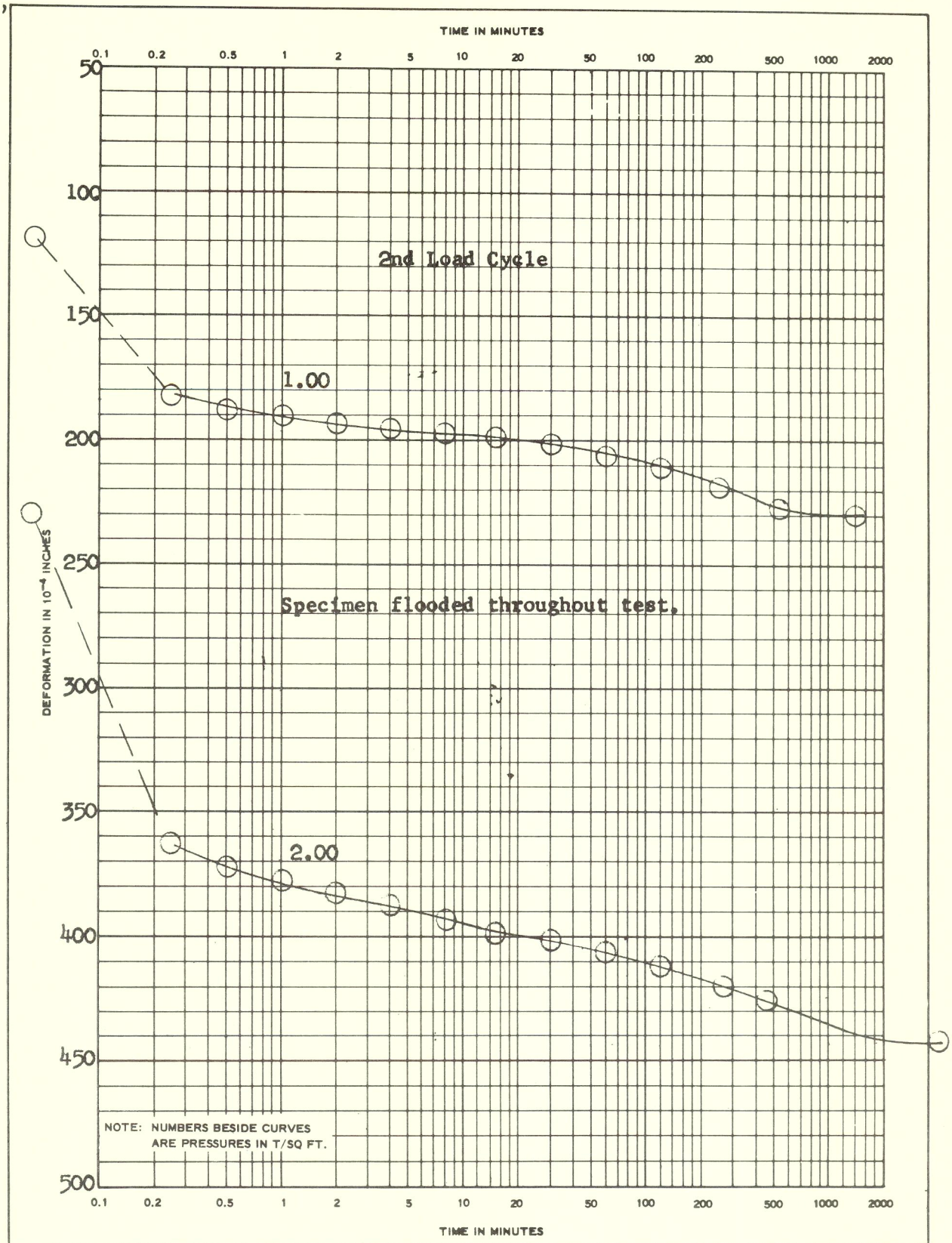
Reqn. No. 44-64-FSM
W. O. No. 2394

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA

CHART NO. 91

Reqn. No. 44-64-FSM
W. O. No. 2394

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project	MILLERS FERRY		
Area	West Bank Road	Lab. No. 202/375	
Boring No. WBR-3	Sample No. 1	Depth 1.0' - 3.0'	Date 8 June 1964

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

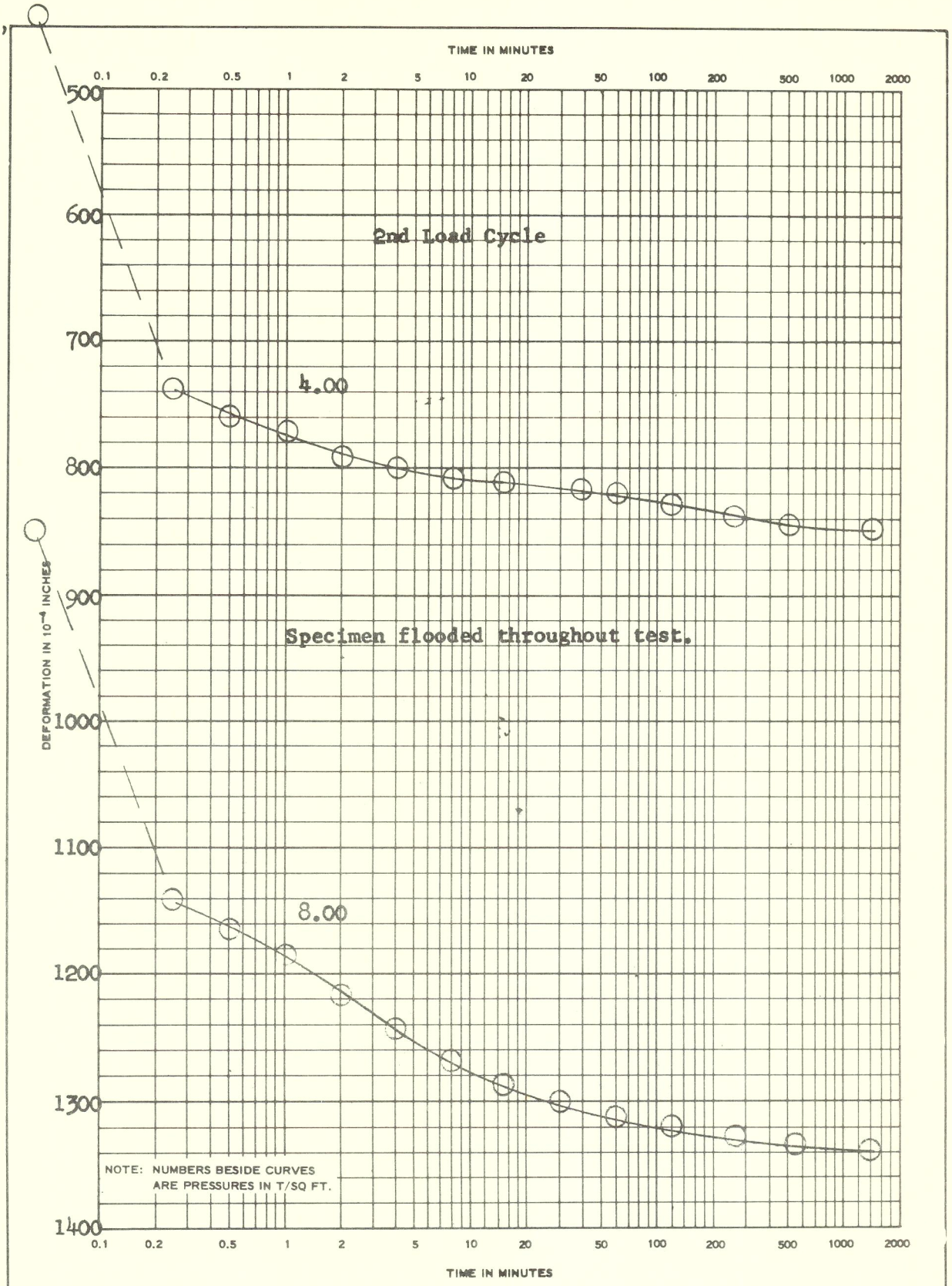
(TRANSLUCENT)

C 3/27

CHART NO. 92

Reqn. No. 44-64-FSM
W. O. No. 2394

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project	MILLERS FERRY		
Area West Bank Road		Lab. No. 202/375	
Boring No. WBR-3	Sample No. 1	Depth 1.0' - 3.0'	Date 8 June 1964

ENG FORM 1 MAY 63 2088
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

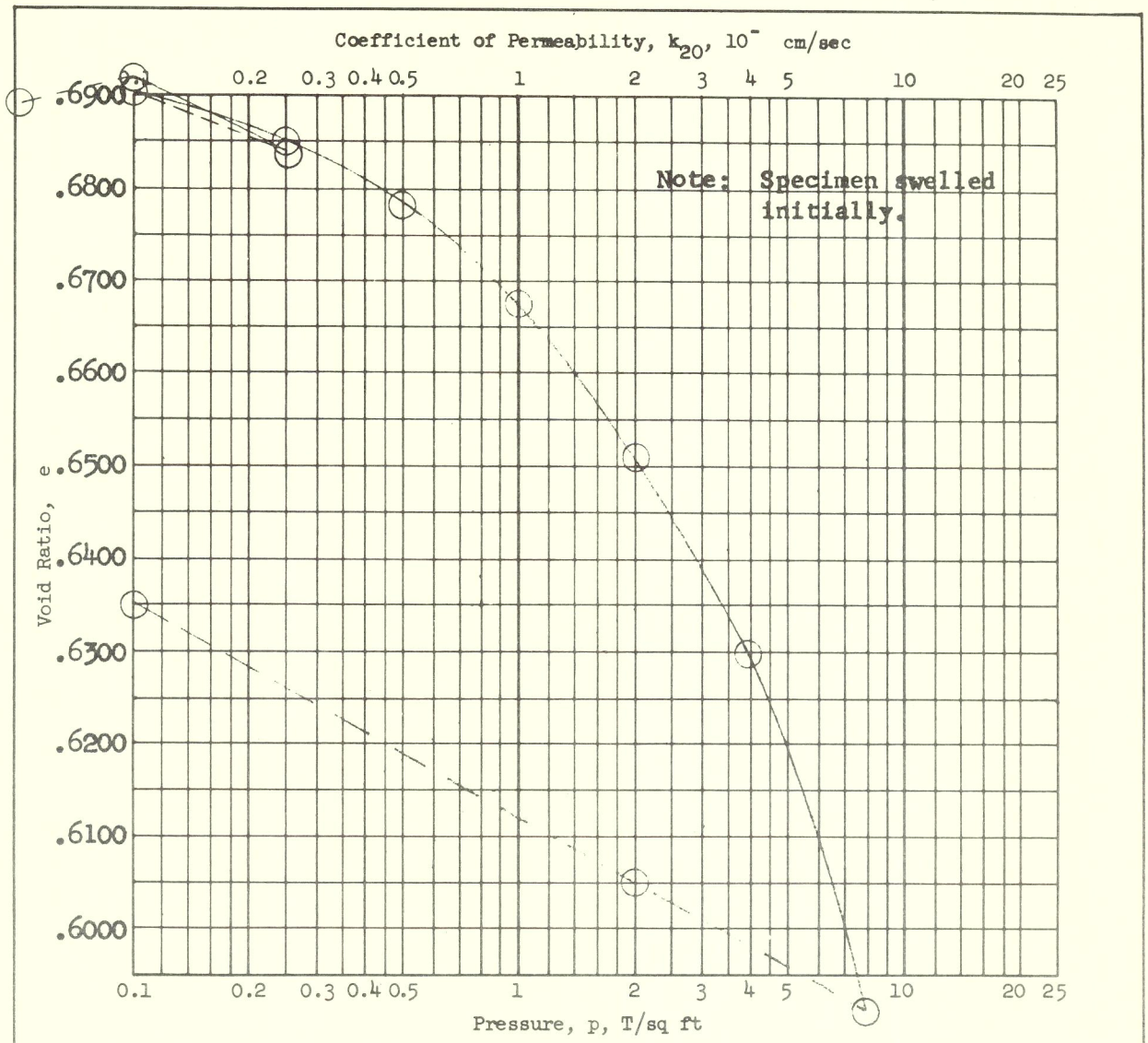
(TRANSLUCENT)

C 3427

CHART NO. 93

Reqn. No. 44-64-FSM
W. O. No. 2394

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA



Type of Specimen Undisturbed		Before Test		After Test	
Diam 4.00 in.	Ht 1.25 in.	Water Content, w_o	21.8 %	w_f	24.5 %
Overburden Pressure, p_o T/sq ft		Void Ratio, e_o	.689	e_f	.660
Preconsol. Pressure, p_c T/sq ft		Saturation, S_o	85.1 %	S_f	100.0 %
Compression Index, C_c		Dry Density, γ_d	99.4 lb/ft^3		
Classification Tan inorganic silt, high liquid limit (MH)		k_{20} at e_o =	$\times 10^{-}$ cm/sec		
LL 60	G_s 2.69	Project MILLERS FERRY			
PL 33	D_{10} --	Lab. No. 202/376			
Remarks 1. See gradation curve on ENG Form 2087.		Area West Bank Road			
		Boring No. WBR-3		Sample No. 2	
2. Specimen flooded throughout test.		Depth 5.0' - 7.0'		Date 8 June 1964	

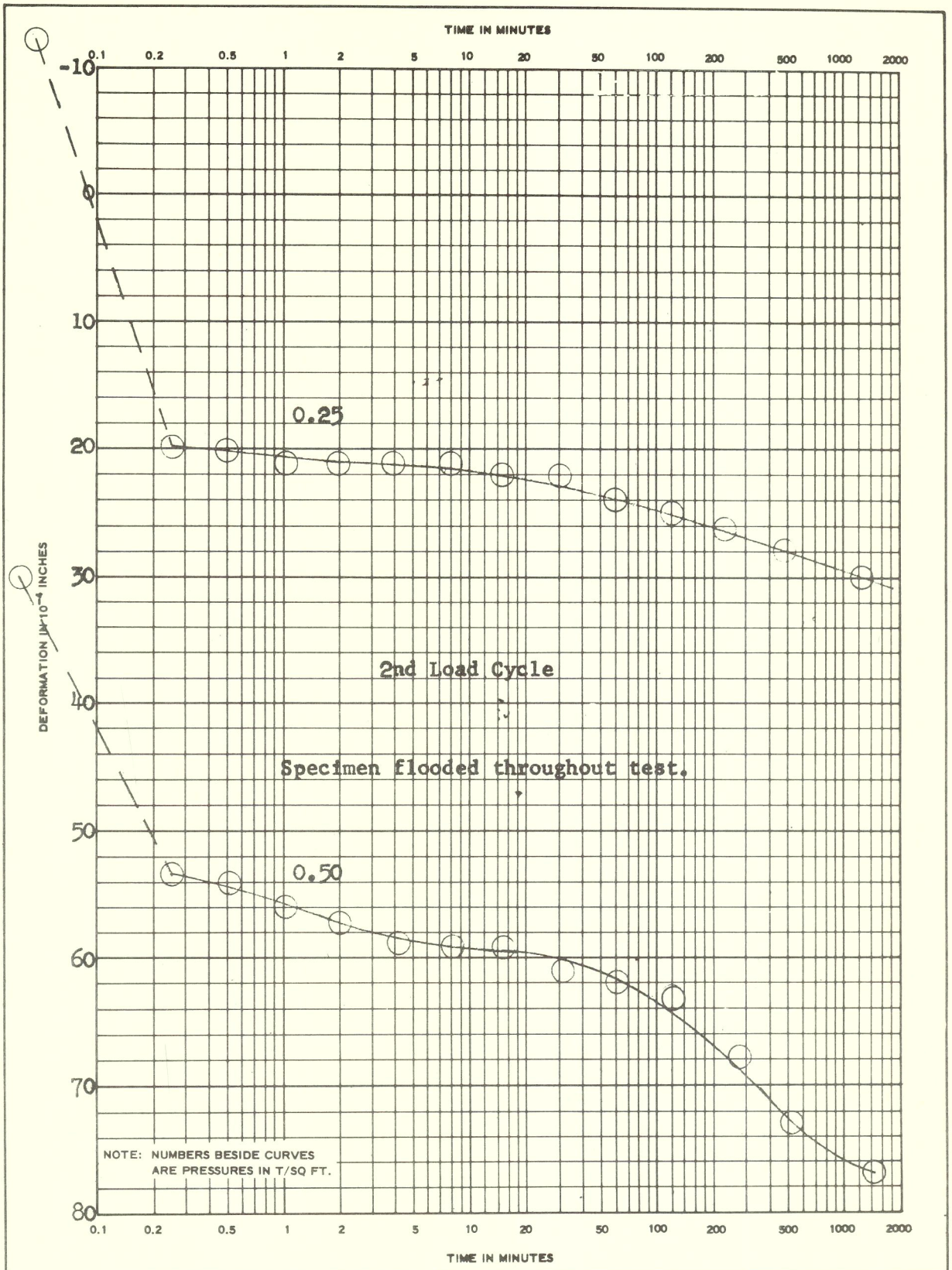
CONSOLIDATION TEST REPORT

ENG FORM 1 MAY 63 2090 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

CHART NO. 94

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA

Reqn. No. 44-64-FSM
W. O. No. 2394



Project	MILLERS FERRY		
Area	West Bank Road	Lab. No. 202/376	
Boring No. WBR-3	Sample No. 2	Depth 5.0' - 7.0'	Date 8 June 1964

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

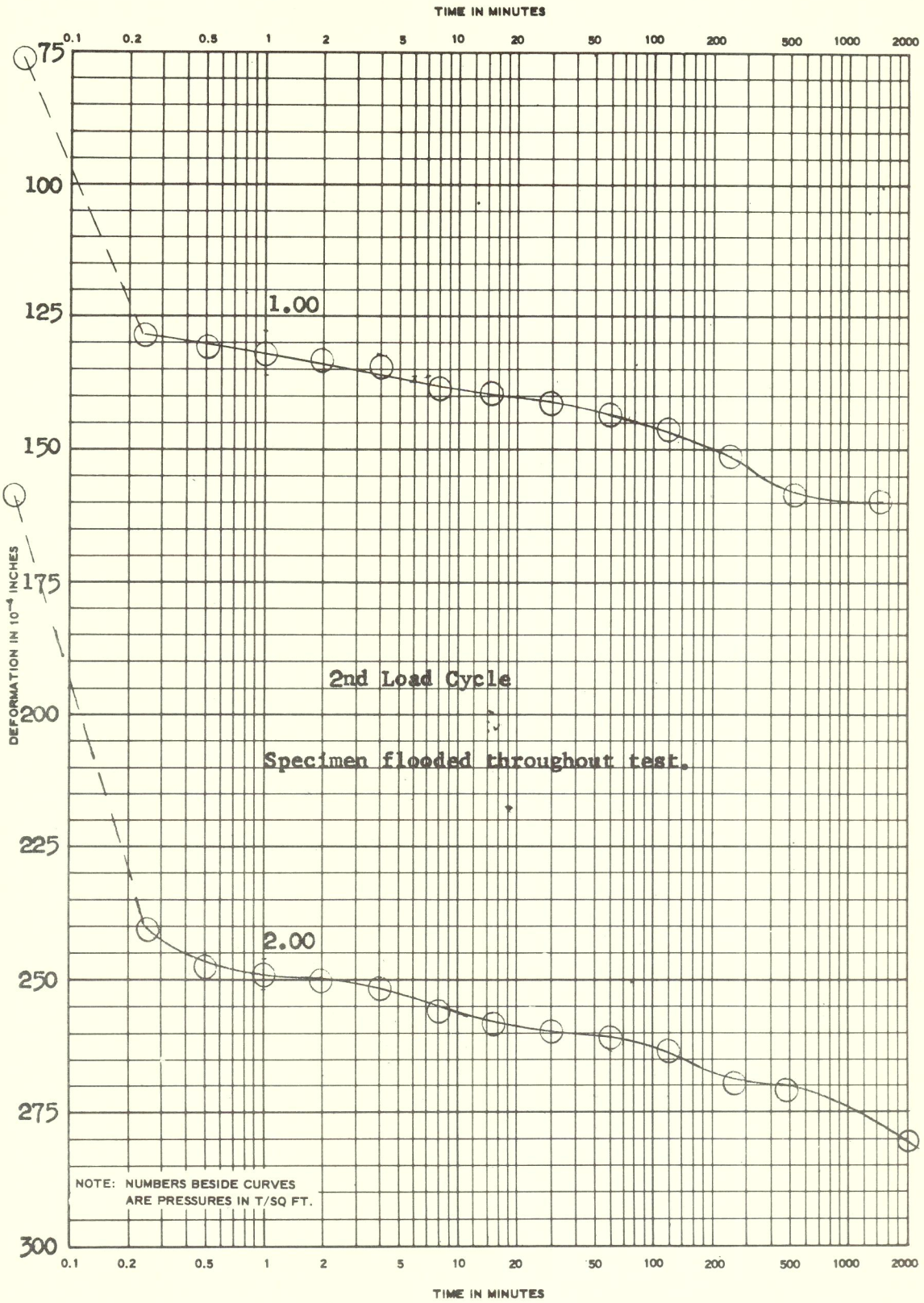
(TRANSLUCENT)

C 3.27

CHART NO. 95

Reqn. No. 44-64-FSM
W. O. No. 2394

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA



Project	MILLERS FERRY		
Area West Bank Road		Lab. No. 202/376	
Boring No. WBR-3	Sample No. 2	Depth 5.0' - 7.0'	Date 8 June 1964

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

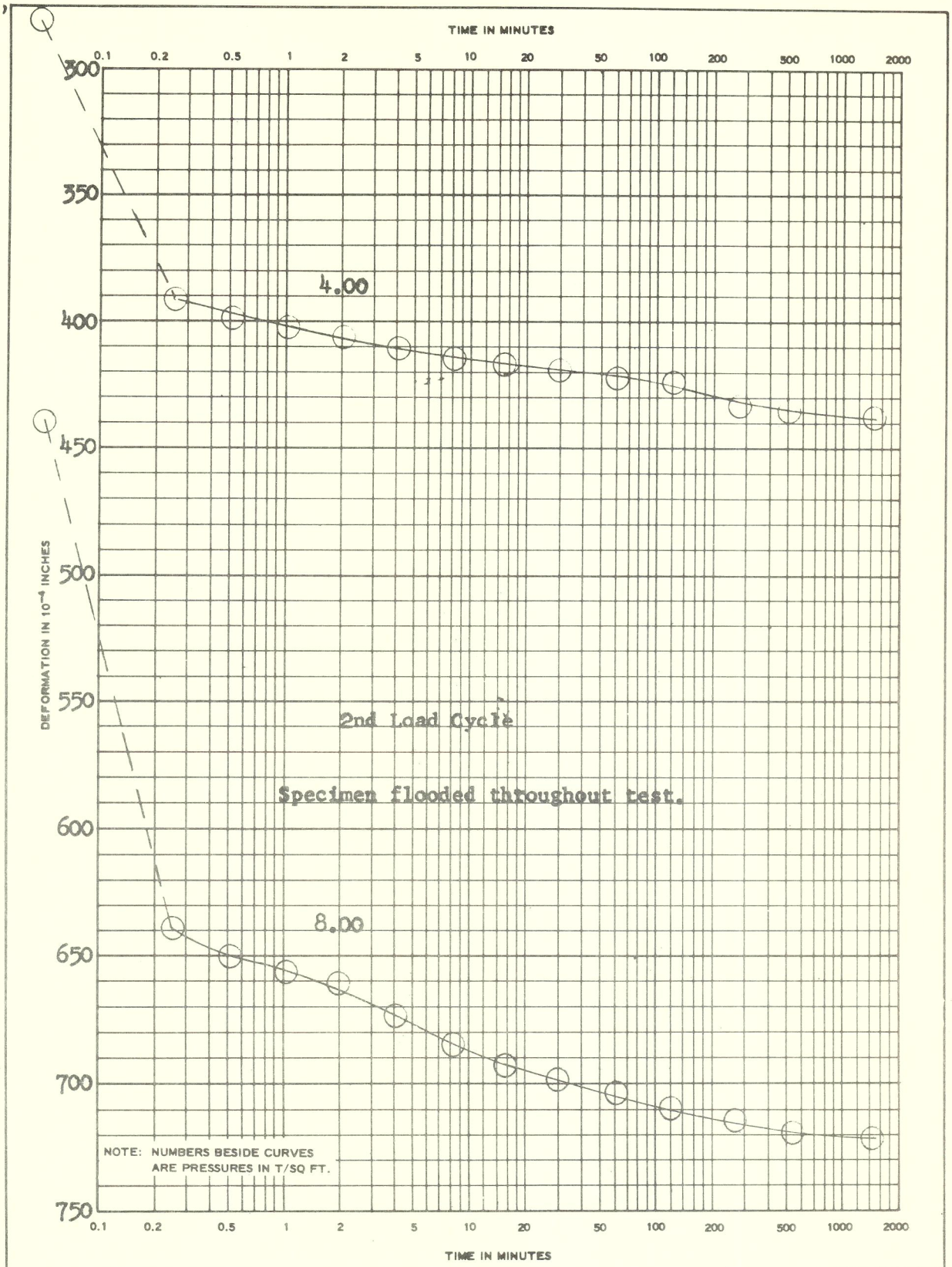
(TRANSLUCENT)

C 3-27

CHART NO. 96

U. S. ARMY ENGINEER DIVISION LABORATORY,
SOUTH ATLANTIC, MARIETTA, GEORGIA

Reqn. No. 44-64-FSM
W. O. No. 2394



Project	MILLERS FERRY		
Area West Bank Road		Lab. No. 202/376	
Boring No. WBR-3	Sample No. 2	Depth XX 5.0' - 7.0'	Date 8 June 1964

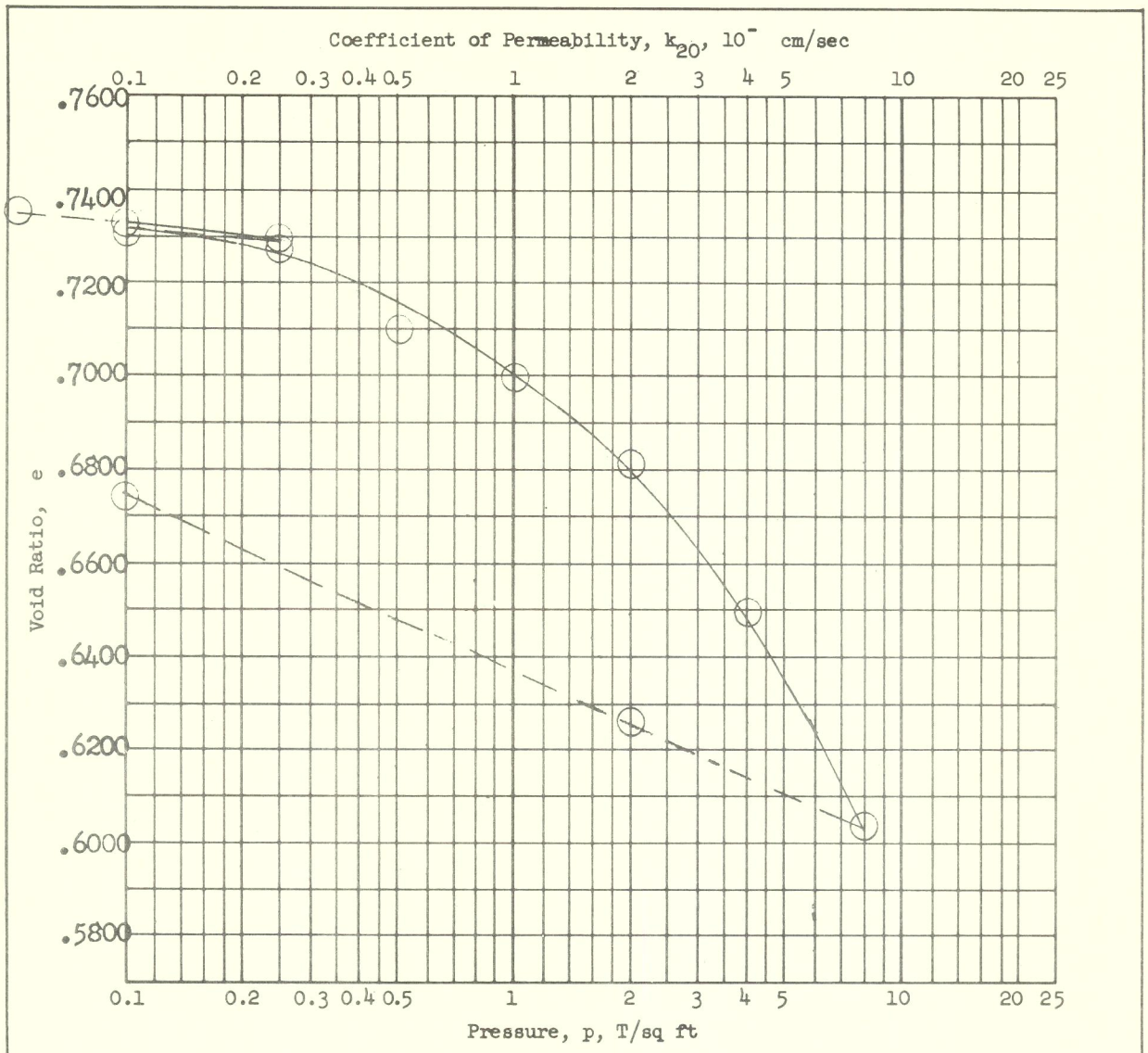
ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

C 3627

CHART NO. 97



U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

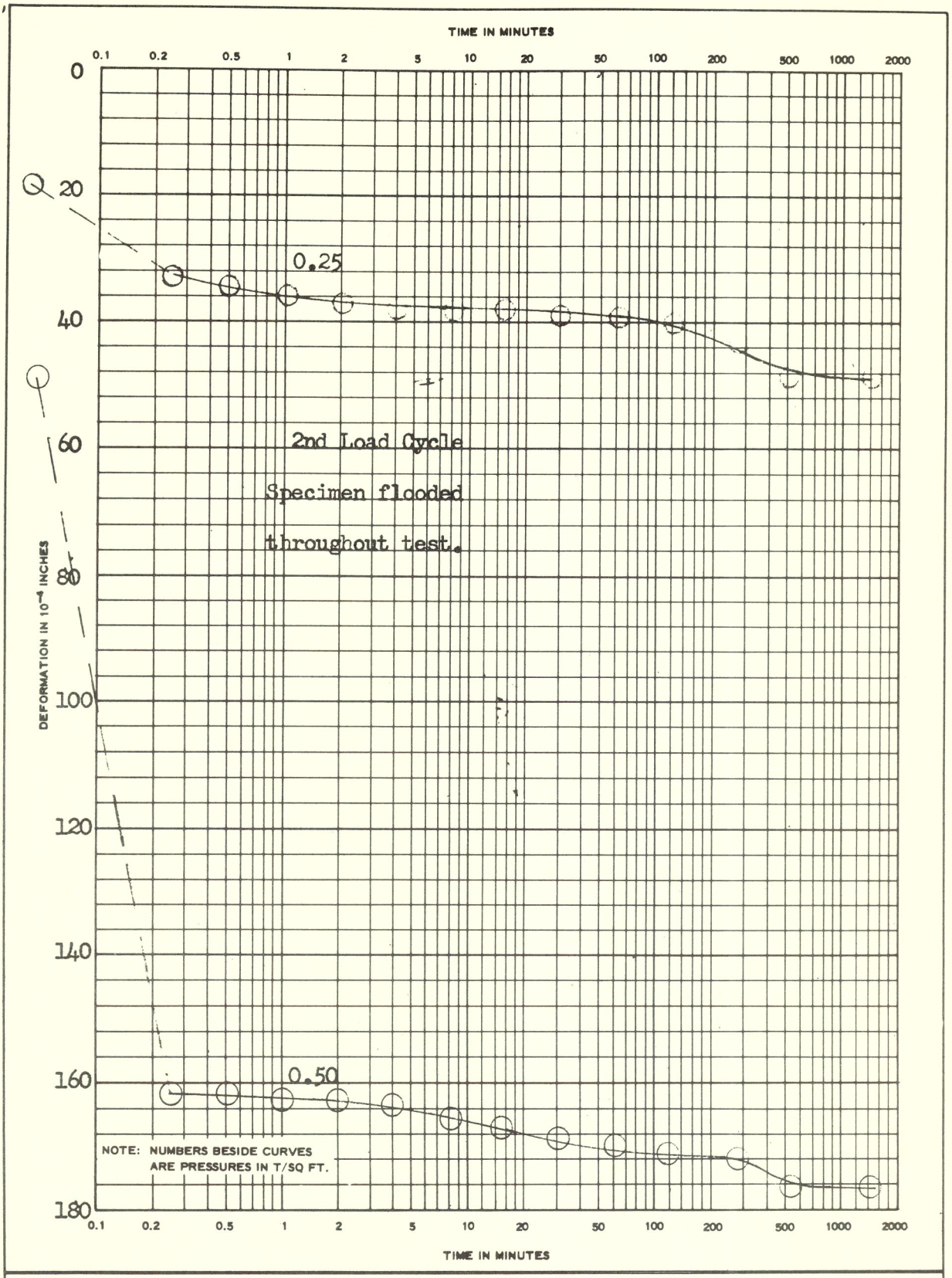
REQ. NO. 44-64-F&M
W.O. NO. 2394

Type of Specimen Undisturbed		Before Test		After Test	
Diam 4.00 in.	Ht 1.25 in.	Water Content, w_o	24.7 %	w_f	24.5 %
Overburden Pressure, p_o T/sq ft		Void Ratio, e_o	.735	e_f	.674
Preconsol. Pressure, p_c T/sq ft		Saturation, S_o	91.3 %	S_f	99.0 %
Compression Index, C_c		Dry Density, γ_d	97.8 lb/ft^3		
Classification Gray & Brown fat clay (CH)		k_{20} at e_o =	$\times 10^{-}$ cm/sec		
LL 51	G_s 2.72	Project Millers Ferry			
PL 26	D_{10} —	Lab. No. 202/378			
Remarks 1. See gradation curve on ENG 2087.		Area West Bank Road			
2. Specimen flooded throughout test.		Boring No. WBR-3		Sample No. 4	
		Depth 15' - 17'		Date 8 June 1964	

CONSOLIDATION TEST REPORT

ENG FORM 1 MAY 63 2090 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

CHART NO. 3424 98



REQ. NO. 44-64 F&M
W.O. NO. 2394

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

Project Millers Ferry		Lab. No. 202/378	
Area West Bank Road			
Boring No. WBR-3	Sample No. 4	Depth ~~XX~~ 15.0'-17.0'	Date 8 June 1964

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

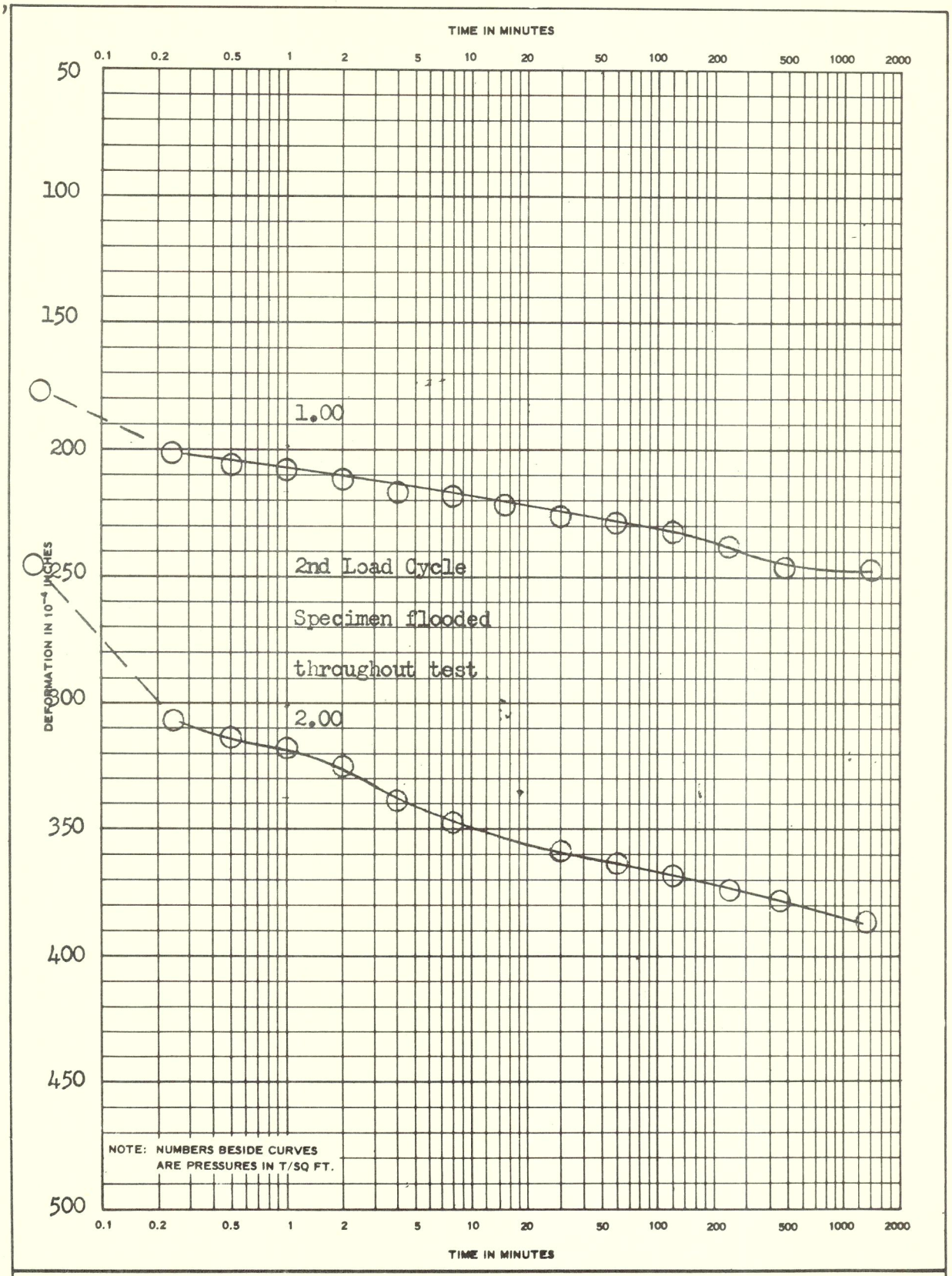
(TRANSLUCENT)

C 3427

CHART NO. 99

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 44-64 F&M
W.O. NO. 2394



Project	Millers Ferry		
Area	West Bank Road	Lab. No. 202/378	
Boring No. WBR-3	Sample No. 4	Depth XXX 15.0'-17.0'	Date 8 June 1964

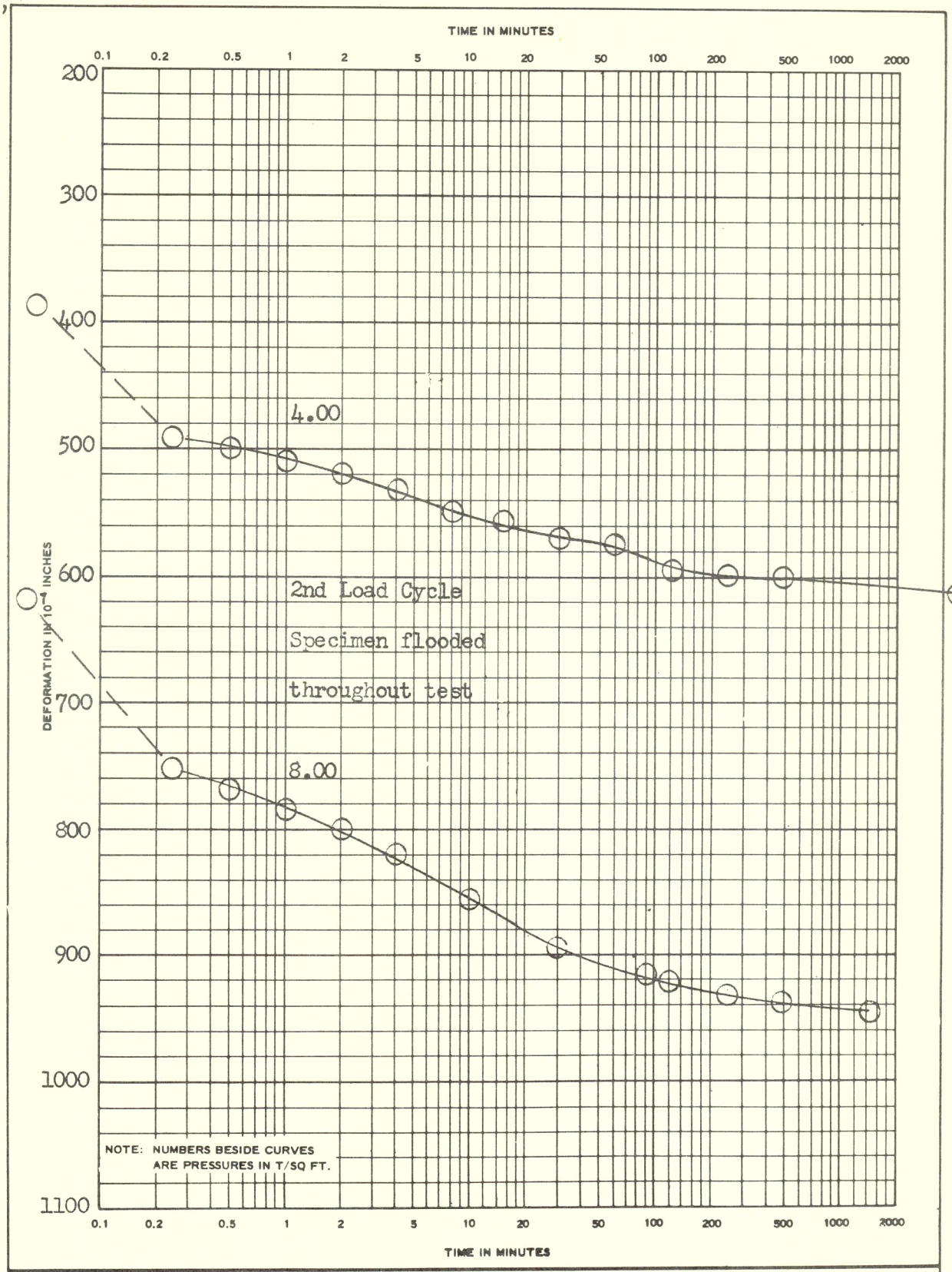
ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

C 3427

CHART NO. 100



U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 44-64 F&M
W.O. NO. 2394

Project	Millers Ferry		
Area	West Bank Road	Lab. No. 202/378	
Boring No. WBR-3	Sample No. 4	Depth 15.0'-17.0'	Date 8 June 1964

ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

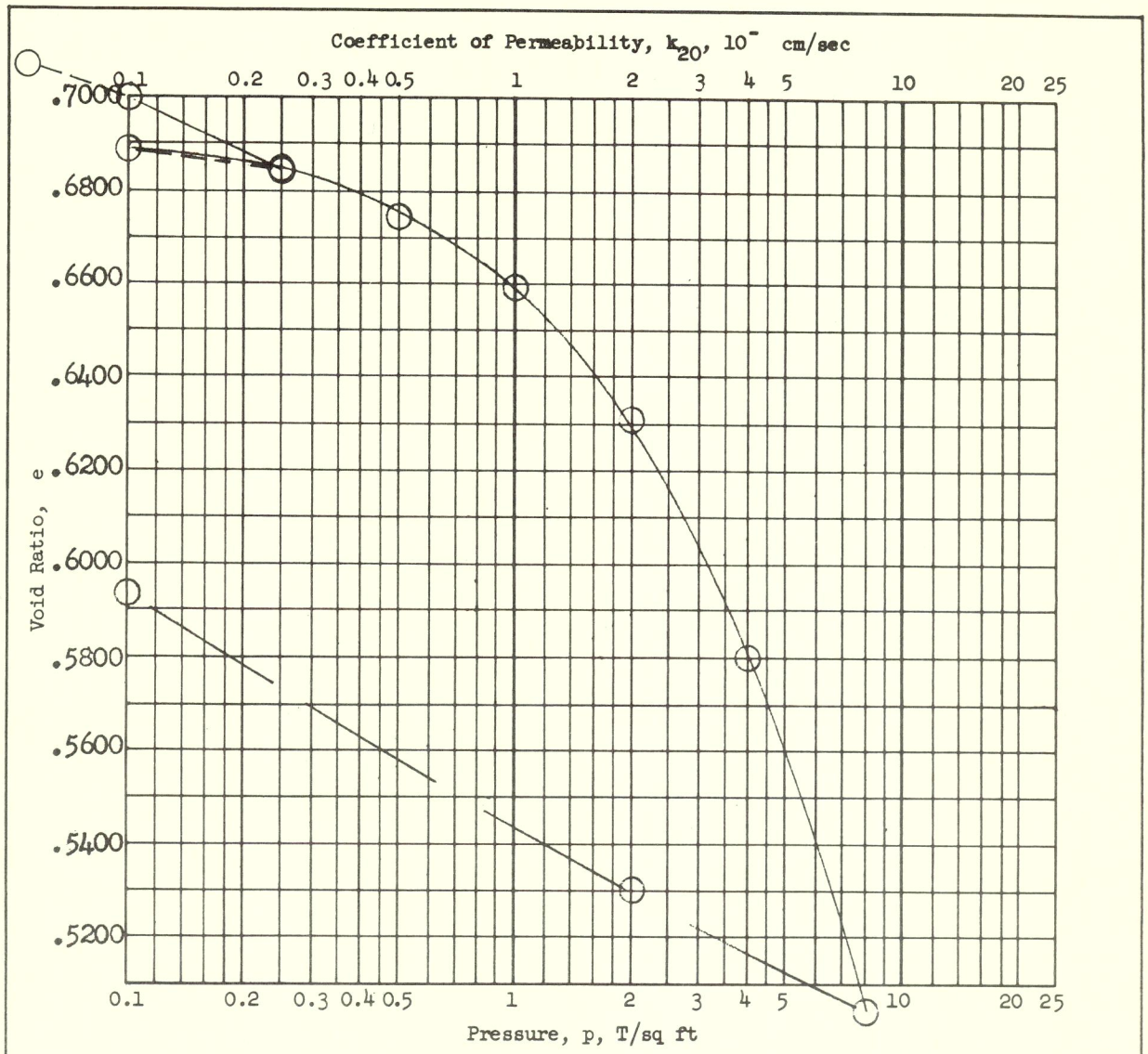
(TRANSLUCENT)

C 3/27

CHART NO. 101

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 44-64 F&M
W.O. NO. 2394



Type of Specimen Undisturbed		Before Test		After Test	
Diam 4.00 in.	Ht 1.25 in.	Water Content, w_o	22.9 %	w_f	21.9 %
Overburden Pressure, p_o T/sq ft		Void Ratio, e_o	.708	e_f	.593
Preconsol. Pressure, p_c T/sq ft		Saturation, S_o	87.4 %	S_f	99.9 %
Compression Index, C_c		Dry Density, γ_d	98.6 lb/ft^3		
Classification Brown lean clay (CL)		k_{20} at e_o =	$\times 10^{-}$ cm/sec		
LL 30	G_s 2.70	Project Millers Ferry			
PL 21	D_{10} ---	Lab. No. 202/379			
Remarks 1. See gradation curve on ENG Form 2087.		Area West Bank Road			
2. Specimen flooded throughout		Boring No. WBR-3		Sample No. 5	
test.		Depth 20.0'-22.0'		Date 8 June 1964	

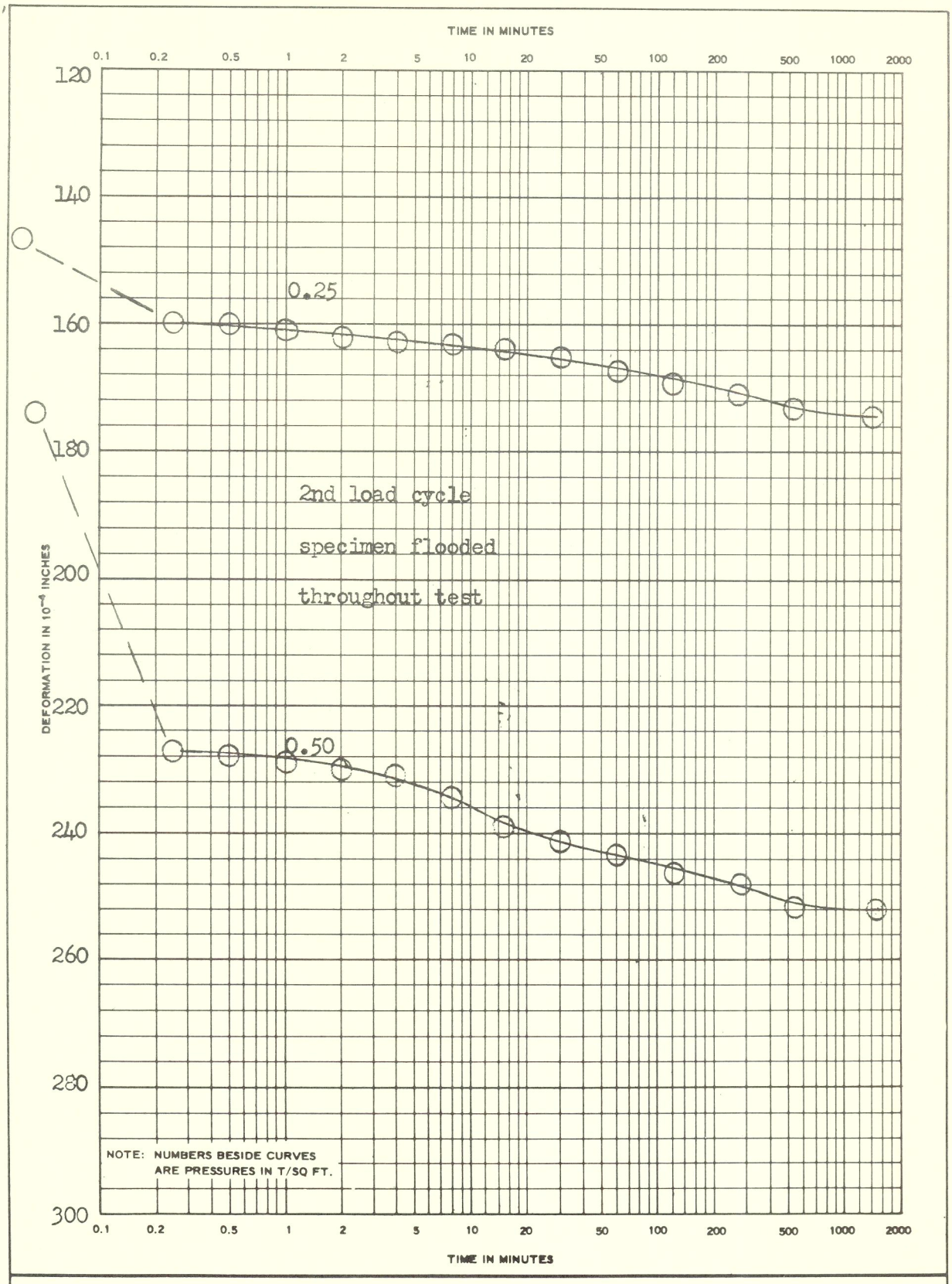
CONSOLIDATION TEST REPORT

ENG FORM 1 MAY 63 2090 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

CHART NO. 102

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 44-64 F&M
W.O. NO. 2394



Project Millers Ferry		Lab. No. 202/379	
Area West Bank Road			
Boring No. WBR-3	Sample No. 5	Depth ~~El~~ 20.0'-22.0'	Date 8 June 1964

ENG FORM 1 MAY 63 2088
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

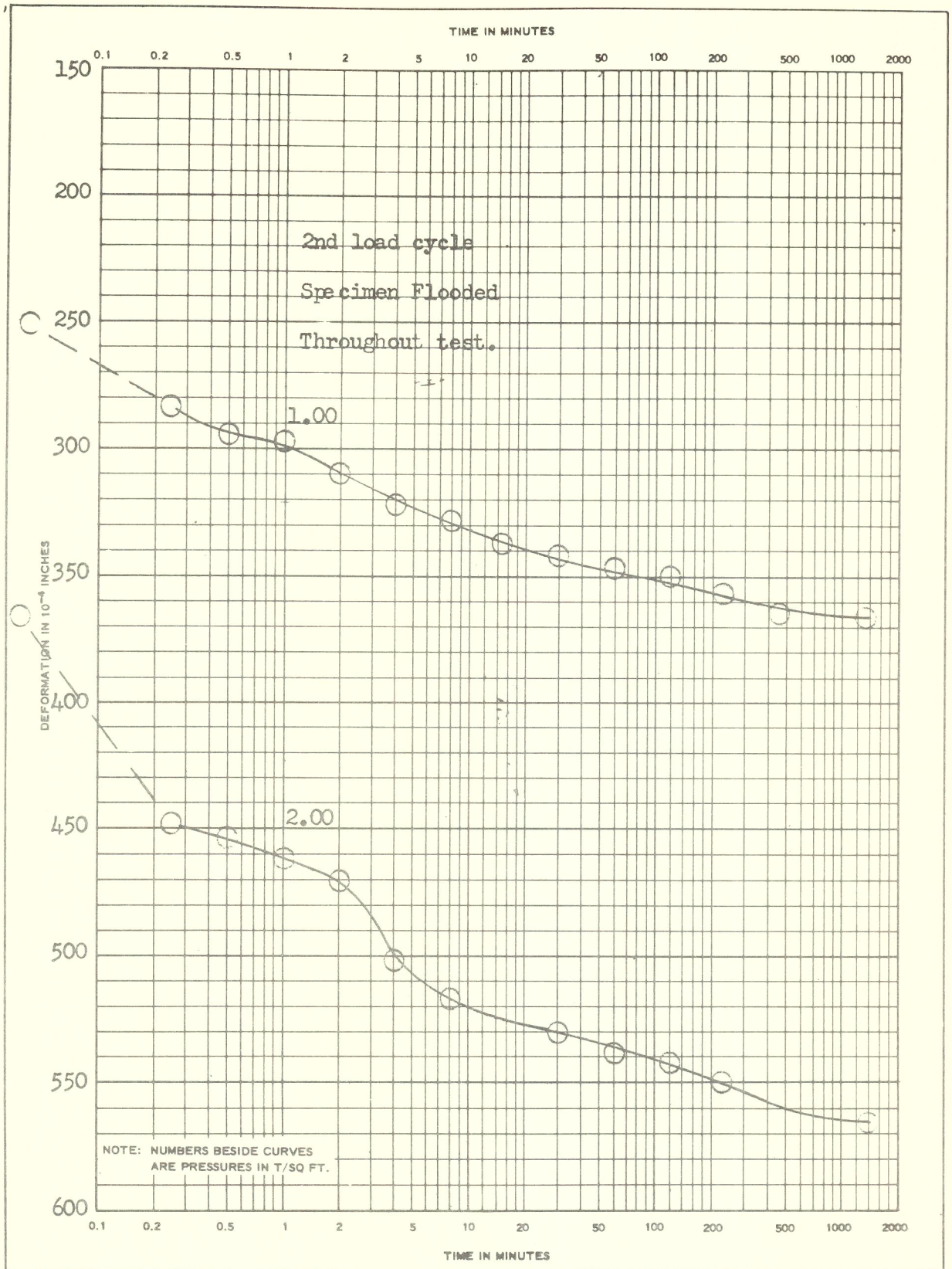
(TRANSLUCENT)

C 3627

CHART NO. 103

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

REQ. NO. 44-64 F&M
W.O. NO. 2394



Project	Millers Ferry		
Area	West Bank Road	Lab. No. 202/379	
Boring No. WBR-3	Sample No. 5	Depth 20.0'-22.0'	Date 8 June 1964

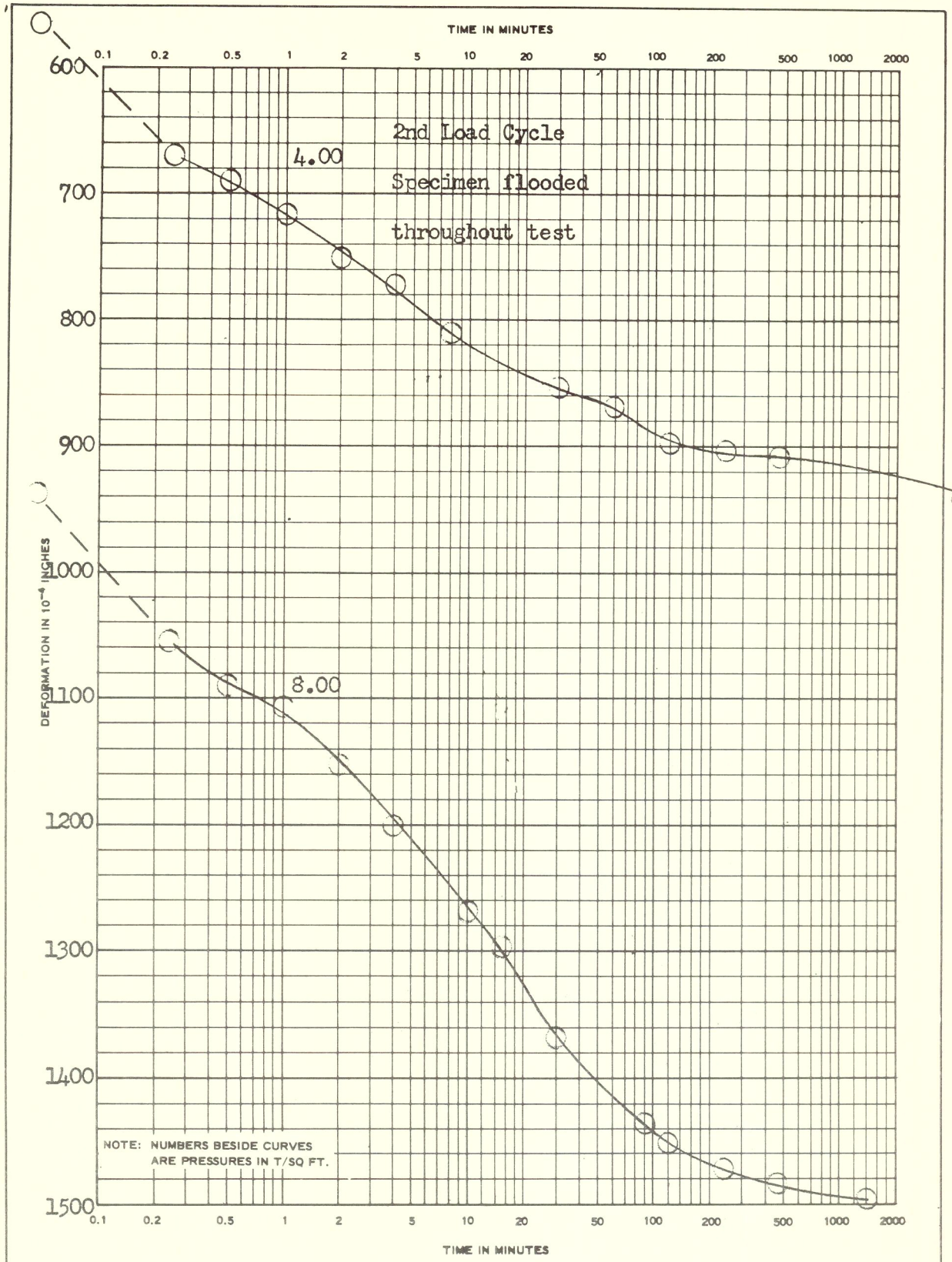
ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

C 3427

CHART NO. 104



REQ. NO. 44-64 F&M
W.O. NO. 2394

U.S. ARMY ENGINEER DIVISION LABORATORY
SOUTH ATLANTIC, MARIETTA, GEORGIA

Project	Millers Ferry		
Area	West Bank Road	Lab. No. 202/379	
Boring No. WBR-3	Sample No. 5	Depth 20.0'-22.0'	Date 8 June 1964

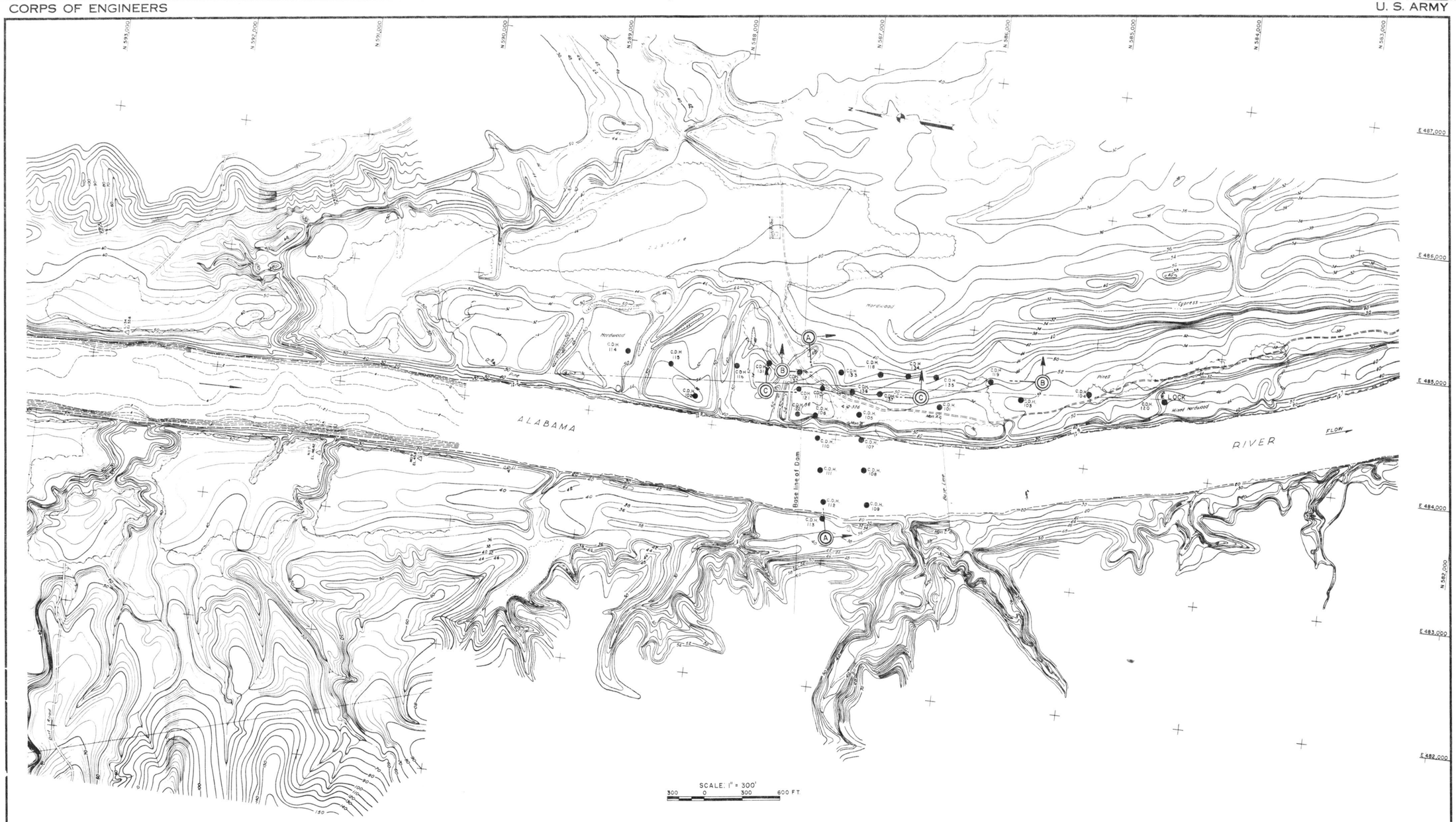
ENG FORM 2088
1 MAY 63
PREVIOUS EDITIONS ARE OBSOLETE.

CONSOLIDATION TEST--TIME CURVES

(TRANSLUCENT)

C 3227

CHART NO. 105



REVISION	DATE	DESCRIPTION	BY	BY

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

DRAWN BY:
TRACED BY:
CHECKED BY:
SUBMITTED BY: CHIEF, GEOLOGY SECTION
APPROVED: CHIEF, ENGINEERING DIVISION
APPROVED: COLONEL, CORPS OF ENGINEERS DISTRICT ENGINEER
DATE:

ALABAMA RIVER, ALABAMA
CLAIBORNE LOCK AND DAM
NEAR CLAIBORNE, ALABAMA
DESIGN MEMORANDUM NO. 1

LAYOUT OF GEOLOGIC EXPLORATION AND LOCATIONS OF GEOLOGIC SECTIONS

APPROVED: DATE:

SCALE: AS SHOWN
FILE NO.
TO ACCOMPANY DESIGN MEMORANDUM NO. DATED APRIL 1965
SHEET OF

PLATE NO. 7

HOLE NO. 132

DEPARTMENT OF THE ARMY — DIVISION Mobile District — INSTALLATION Corps of Engineers

1- PROJECT: Claiborne L&D — SHEET 1 OF 2
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
5- NAME OF DRILLER: A. Taylor

DRILLING LOG

4- HOLE NO. (As shown on drawing title and file no.): 132
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 52.3 — 8- DEPTH DRILLED INTO ROCK: 48.5 — 9- TOTAL DEPTH OF HOLE: 100.8
10- SIZE AND TYPE OF BIT: 6x5½" Bottom Dis.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED: 0 — UNDISTURBED: 0
14- TOTAL NO. CORE BOXES: 3
15- ELEV. GROUND WATER: 21.7
16- DATE HOLE: STARTED 11-29-62 — COMPLETED 11-1-62
17- ELEV. TOP OF HOLE: 69.7
18- TOTAL CORE RECOVERY FOR BORING (%): 96
19- SIGNATURE OF INSPECTOR: J. Norton

Hard Rock Scale

ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY (Ex)	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
47.7	2.0	Sand, tan.				Dry samples taken of overburden. Samples discarded.
		Silty sand, brown.				Scale 1"=5'
39.7	10.0	Clayey silt, brown.				
34.7	15.0	Sandy clay, brown, medium plasticity.				
21.7	28.0	Silty sand, brown.				
14.7	35.0	Clayey sand, brown.				
9.7	40.0	Clayey sand, grey.				
4.7	45.0	Sandy clay, highly micaceous, grey, low plasticity.				

HOLE NO. 137

DEPARTMENT OF THE ARMY — DIVISION Mobile District — INSTALLATION Corps of Engineers

1- PROJECT: Claiborne Lock & Dam — SHEET 1 OF 3
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
5- NAME OF DRILLER: A. Taylor

DRILLING LOG

4- HOLE NO. (As shown on drawing title and file no.): 137
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 70.0 — 8- DEPTH DRILLED INTO ROCK: 32.2 — 9- TOTAL DEPTH OF HOLE: 102.2
10- SIZE AND TYPE OF BIT: 6x5½" Bottom Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED: 0 — UNDISTURBED: 0
14- TOTAL NO. CORE BOXES: 4
15- ELEV. GROUND WATER: 18.9
16- DATE HOLE: STARTED 11/16/62 — COMPLETED 11/28/62
17- ELEV. TOP OF HOLE: 50.9
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19- SIGNATURE OF INSPECTOR: J. Norton

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY (Ex)	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
48.4	2.5		Silty sand, brown.				Dry samples taken in overburden. Samples discarded.
			Sandy clay, brown. Med. plasticity.				Scale 1"=5'
42.9	8.0		Silty sand, brown.				
34.9	16.0		Clayey sand, brown.				
24.9	26.0		Silty sand, brown.				
1.9	49.0						

HOLE NO. 112

DEPARTMENT OF THE ARMY — DIVISION Corps of Engineers — INSTALLATION Mobile District

1- PROJECT: Claiborne Dam Site — SHEET 1 OF 1
2- LOCATION (Coordinates or Station): Base Line Sta. 53+25-1000' upstream
3- DRILLING AGENCY: Mobile District
5- NAME OF DRILLER: Pete Dyer

DRILLING LOG

4- HOLE NO. (As shown on drawing title and file no.):
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 5.9 — 8- DEPTH DRILLED INTO ROCK: 14.3 — 9- TOTAL DEPTH OF HOLE: 20.2
10- SIZE AND TYPE OF BIT: 6x5½" Bottom Disc.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED: 0 — UNDISTURBED: 0
14- TOTAL NO. CORE BOXES: 2
15- ELEV. GROUND WATER: Alvord
16- DATE HOLE: STARTED 8-6-62 — COMPLETED 8-6-62
17- ELEV. TOP OF HOLE: -2.8
18- TOTAL CORE RECOVERY FOR BORING (%): 82
19- SIGNATURE OF INSPECTOR: J.H. Bryan

ELEVATION	DEPTH	Hard Rock Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY (Ex)	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
			Overburden: Sand with few small gravel				
-8.7	5.9	B	Sand, fn. to med. grn., compact, fossiliferous	0			Base of alluvial material (Top of Tallahatta Fm.)
-11.6	8.8	E	Sandstone, fossil., various thin claystone layers & pockets	90			Top of Rock and Top of Sound Foundation Material El. -12.8 to -13.0 Hard. C
-14.5	11.7	D		100	1		
				100			
-23.0	20.2	E	Claystone, greenish gray, cemented.	100	2		Bottom of Hole
			Cemented hole with 3 sacks of cement				El. -16.4 to -18.8 core badly broken due to mechanical trouble El. -20.6 Joint, Dip 45°, tight

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE (EM 1110-2-1803) PROJECT Claiborne HOLE NO. 112

HOLE NO. 132

DEPARTMENT OF THE ARMY — DIVISION Mobile District — INSTALLATION Corps of Engineers

1- PROJECT: Claiborne L&D — SHEET 2 OF 2
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
5- NAME OF DRILLER: A. Taylor

DRILLING LOG

4- HOLE NO. (As shown on drawing title and file no.): 132
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 52.3 — 8- DEPTH DRILLED INTO ROCK: 48.5 — 9- TOTAL DEPTH OF HOLE: 100.8
10- SIZE AND TYPE OF BIT: 6x5½" Bottom Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED: 0 — UNDISTURBED: 0
14- TOTAL NO. CORE BOXES: 5
15- ELEV. GROUND WATER: 21.7
16- DATE HOLE: STARTED 10-29-62 — COMPLETED 11-1-62
17- ELEV. TOP OF HOLE: 69.7
18- TOTAL CORE RECOVERY FOR BORING (%): 96
19- SIGNATURE OF INSPECTOR: J. Norton

Hard Rock Scale

ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY (Ex)	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
-2.6	52.3					Top Rock
		B to E Sand, with cemented zones, and small claystone pockets	90			
-5.9	55.6					
		D to E Sandstone, tightly consolidated with cemented zones, claystone pockets & thin seams.	74	1		
-10.3	60.0	B to C Sand, consolidated, fossiliferous.	100			
-13.1	62.8					Top of Sound Rock
		E to C Sandstone, fossiliferous, cemented, with claystone pockets & seams.	100	2		El.-18.7 to -20.1 core fractured El.-20.1 to -21.8 Core fractured-blocked off in making runs, forcing barrel & caused core to fracture.
-16.5	66.2					
		C to D Claystone, tightly consolidated, uncemented.				
			100			
-20.6	70.3					
		D to E Claystone, tightly consolidated, uncemented with cemented zones	100	3		
			100			
-29.8	79.5					
-31.2	80.9	E to D Claystone, with sandstone pockets	100	4		
		D to C Claystone, uncemented, tightly consolidated.				
-33.7	83.4					
		D to E Claystone, tightly consolidated uncemented with cemented sandstone pockets.	100	5		
-40.9	90.6					
		E to D Sandstone, fossiliferous	93			
-42.7	92.4	D Sandstone, loosely cemented.		6		8 bags cement pumped in hole
-44.2	93.9					
		E to D Claystone, with sandstone pockets & lenses, cemented with loosely cemented zones				
-46.8	96.5					
		D to E Claystone, tightly consolidated uncemented, with few thin cemented sandstone pockets & lenses.	100	7		
-51.1	100.8					Bottom Hole El. -51.1

HOLE NO. 137

DEPARTMENT OF THE ARMY — DIVISION Mobile District — INSTALLATION Corps of Engineers

1- PROJECT: Claiborne Lock & Dam Site — SHEET 2 OF 3
2- LOCATION (Coordinates or Station): Claiborne Lock & Dam
3- DRILLING AGENCY: Mobile District
5- NAME OF DRILLER: A. Taylor

DRILLING LOG

4- HOLE NO. (As shown on drawing title and file no.): 137
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 70.0 — 8- DEPTH DRILLED INTO ROCK: 32.2 — 9- TOTAL DEPTH OF HOLE: 102.2
10- SIZE AND TYPE OF BIT: 6x5½" Bottom Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED: 0 — UNDISTURBED: 0
14- TOTAL NO. CORE BOXES: 4
15- ELEV. GROUND WATER: 18.9
16- DATE HOLE: STARTED 11/16/62 — COMPLETED 11/28/62
17- ELEV. TOP OF HOLE: 50.9
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19- SIGNATURE OF INSPECTOR: J. Norton

ELEVATION	DEPTH	Hard Rock Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY (Ex)	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
			Sand & gravel				
-19.1	70.0						
-20.0	70.9	LOC	Sandstone fossiliferous, with claystone pockets	100			Top of Rock
		D to E	Sandstone, clayey, fossil.	100			El. -20.1 Top of Sound Rock
-21.7	72.6						
		E to C	Claystone, sl/fossiliferous, cemented, w/tightly consolidated, uncemented zones.	100	1		El.-22.6 to -23.4 V. Joint, open
-25.5	76.4						" -25.5 to -25.9 " " "
		E to C	Claystone, cemented, w/tightly consolidated, uncemented zones. Badly jointed & fractured.	100			" -34.5 to -34.8 70° Joint, open
					2		" -35.8 to -36.3 Jointed & fractured
-29.5	80.4						
		E to D	Claystone, sl/fossiliferous, cemented, w/tightly consolidated uncemented zones.				
-35.8	86.7						
		D to E	Claystone, sl/fossiliferous, tightly consolidated, uncemented, with cemented zones	98	3		
-61.6	92.5						
		E	Sandstone, fossiliferous cemented, w/thin seams of claystone, w/.1' sand layer	98			Depth 76.4 to 80.4 core, when extracted from core barrel, parted into pieces of various sizes
-44.8	95.7						
-46.3	97.2	C	Claystone, fossiliferous with sand pockets, uncemented	92	4		
-47.6	98.5	E	Sandstone, fossiliferous				
			Cont'd Sheet 3				

HOLE NO. 137

DEPARTMENT OF THE ARMY — DIVISION Mobile District — INSTALLATION Corps of Engineers

1- PROJECT: Claiborne Lock & Dam — SHEET 3 OF 3
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
5- NAME OF DRILLER: A. Taylor

DRILLING LOG

4- HOLE NO. (As shown on drawing title and file no.): 137
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 70.0 — 8- DEPTH DRILLED INTO ROCK: 32.2 — 9- TOTAL DEPTH OF HOLE: 102.2
10- SIZE AND TYPE OF BIT: 6x5½" Bottom Dia.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED: 0 — UNDISTURBED: 0
14- TOTAL NO. CORE BOXES: 5
15- ELEV. GROUND WATER: 18.9
16- DATE HOLE: STARTED 11/16/62 — COMPLETED 11/28/62
17- ELEV. TOP OF HOLE: 50.9
18- TOTAL CORE RECOVERY FOR BORING (%):
19- SIGNATURE OF INSPECTOR: J. Norton

ELEVATION	DEPTH	Hard Rock Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY (Ex)	BOX NO.	SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
-51.3	102.2	B to D	Claystone, fossiliferous, with sandstone pockets and few thin scattered seams.			5	Bottom of Hole El.-42.3 thin sand layer El.-43.8 " " "
			5 bags cement pumped into hole.				Hardness Scale A-Soft as mud B-Penetrated w/pencil C- " w/knife D-Cut " E-Scratch " F-Can't " "

REVISION	DATE	DESCRIPTION	BY	BY	BY

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

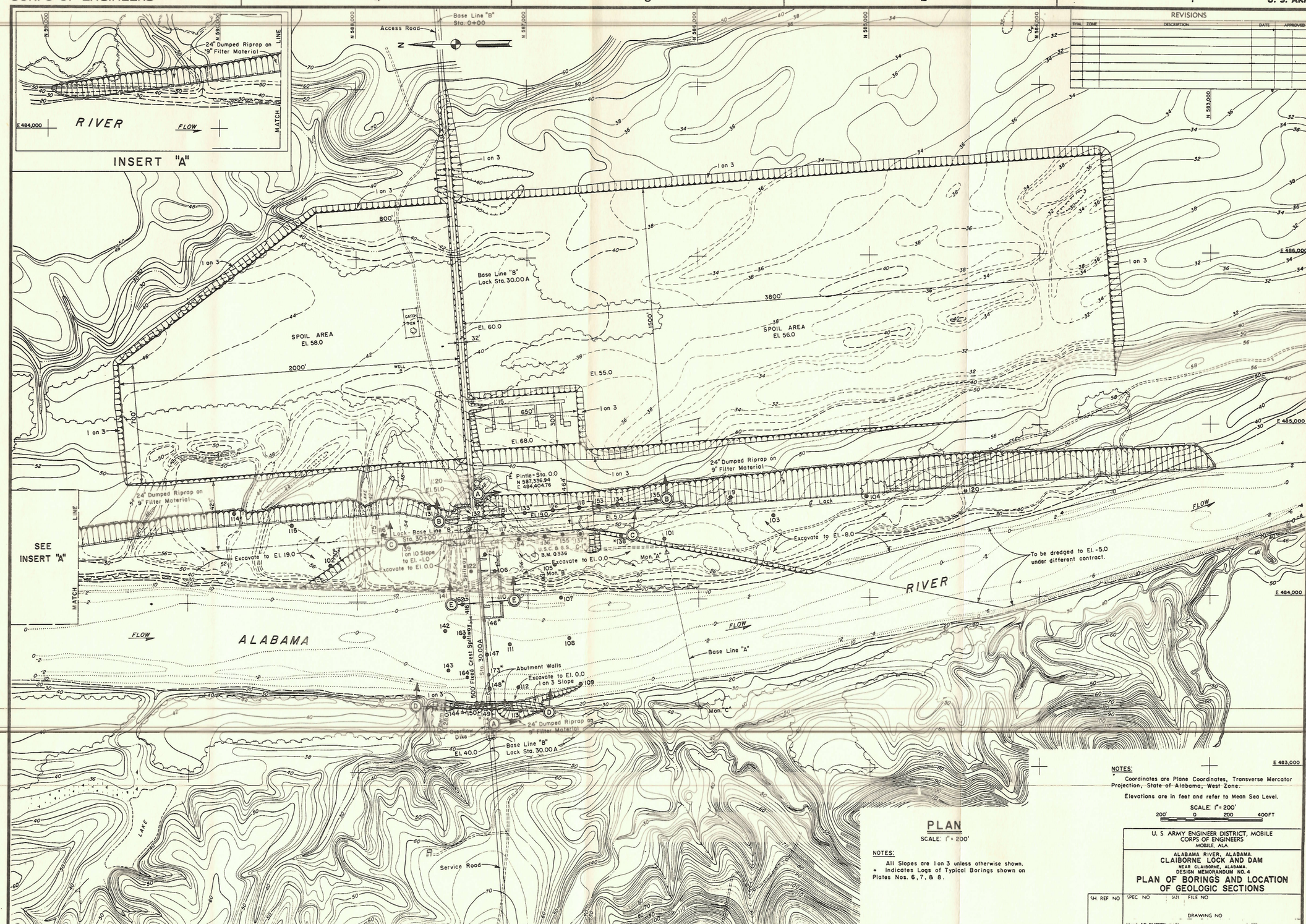
DRAWN BY:
TRACED BY:
CHECKED BY: R.C.
SUBMITTED BY:
CHIEF, GEOLOGY SECTION APPROVED: APPROVED: DATE:
CHIEF, DESIGN BRANCH APPROVED: CHIEF, ENGINEERING DIVISION
COLONEL, CORPS OF ENGINEERS, DISTRICT ENGINEER
DATE:

ALABAMA RIVER, ALABAMA
CLAIBORNE LOCK AND DAM
NEAR CLAIBORNE, ALABAMA
DESIGN MEMORANDUM NO. 1

LOGS OF TYPICAL BORINGS

SCALE: No Accompany Report Dated April 1965
FILE NO.
DRAWING NO.
SHEET OF

CORPS OF ENGINEERS | 4 | 3 | 2 | 1 | U. S. ARMY



REVISIONS

SYM.	ZONE	DESCRIPTION	DATE	APPROVED

PLAN

SCALE: 1" = 200'

NOTES:

All Slopes are 1 on 3 unless otherwise shown.

* Indicates Logs of Typical Borings shown on Plates Nos. 6, 7, & 8.

NOTES:

* Coordinates are Plane Coordinates, Transverse Mercator Projection, State of Alabama, West Zone.

Elevations are in feet and refer to Mean Sea Level.

SCALE: 1" = 200'

200' 0 200 400 FT

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
CLAIBORNE LOCK AND DAM
NEAR CLAIBORNE, ALABAMA
DESIGN MEMORANDUM NO. 4

PLAN OF BORINGS AND LOCATION OF GEOLOGIC SECTIONS

SH REF NO | SPEC NO | SIZE | FILE NO

DRAWING NO

SCALE AS SHOWN | DATE | SHEET

5 | 4 | 3 | 2 | 1 | PLATE NO. 1

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

DRILLING LOG

HOLE NO. 116 — SHEET 1 OF 3

1- PROJECT: Claiborne Dam Site
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 116
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 49.3
8- DEPTH DRILLED INTO ROCK: 66.4
9- TOTAL DEPTH OF HOLE: 115.7
10- SIZE AND TYPE OF BIT: 4x5¼" Bottom Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED
14- TOTAL NO. CORE BOXES: 9
15- ELEV. GROUND WATER: 28.0
16- DATE HOLE: STARTED 9/17/62; COMPLETED 9/19/62
17- ELEV. TOP OF HOLE: 48.0
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19- SIGNATURE OF INSPECTOR: E. Humphrey

ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			Scale 1"=5'				
			Silty sand, brown, (SM)				
43.0	5.0						
			Silty clay, brown, tough, (CL)				
39.5	8.5						
			Sand, medium grained, (SW)				
33.0	15.0						
			Silty clay, brown, micaceous (CL)				
22.0	26.0						
			Silty sand, w/very little fines (SM -SW)				
15.0	33.0						
			Sandy clay, slight plasticity (CL)				
8.0	40.0						
			Clayey sand, grey, (SC)				
1.5	46.5						
			Sand & gravel, (GW)				
-1.3	49.3	E	Cont'd Top Page 2	79	1	1	Top of Rock

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

DRILLING LOG

HOLE NO. 116 — SHEET 2 OF 3

1- PROJECT: Claiborne Dam Site
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 116
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 49.3
8- DEPTH DRILLED INTO ROCK: 66.4
9- TOTAL DEPTH OF HOLE: 115.7
10- SIZE AND TYPE OF BIT: 4x5¼" Bottom Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED
14- TOTAL NO. CORE BOXES: 9
15- ELEV. GROUND WATER: 28.0
16- DATE HOLE: STARTED 9/17/62; COMPLETED 9/19/62
17- ELEV. TOP OF HOLE: 48.0
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19- SIGNATURE OF INSPECTOR: E. Humphrey

ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-3.3	51.3	C	Sandstone, argillaceous, fossiliferous, friable				
		B	Silty sand, fossiliferous	79		1	
-8.1	56.1						
		E	Interbedded sandstone & claystone, fossiliferous	86			E1.-8.4 Top of Sound Foundation Material
-10.3	58.3						E1.-10.3-Joint, tight dip 45°, slickenside runs parallel to joint
							E1. -16.9-Series of joints, tight, vertical
		D	Claystone	100		2	
-16.6	64.6	E	Sandy claystone	100			
-17.4	65.4	E	Silty sand				
-17.8	65.8	E to D	Sandy claystone cemented, fossiliferous	100		3	E1. -17.8 -Joint, open, pyrite lined, vertical E1. -19.5-E1.-19.8 claystone, hardness C E1. -19.8-E1.-19.9 silty sand, hardness B E1.-23.3-E1.-24.5, core badly broken.
		E to D		100		4	
-28.2	76.2						
			Claystone, w/occasional sandstone lenses				
-32.2	80.2	E	Sandstone, well cemented highly fossiliferous	100			
-33.2	81.2	D	Sandy claystone, slightly fossiliferous			5	E1. -34.5-34.6 Silty sand, hardness B
-34.7	82.7	E	Sandstone, fossiliferous, well cemented	100			
-38.0	86.0	E					E1.-38.5 -38.7 Silty sand, consolidated, hardness B to C
		D	Sandy claystone, cemented. Fossiliferous, w/numerous sandstone lenses.	100		7	E1.-47.4 to E1.-47.8 Sandstone -Hardness E
		D	Cont'd Top of Page 3	100			

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

DRILLING LOG

HOLE NO. 116 — SHEET 3 OF 3

1- PROJECT: Claiborne Dam Site
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 116
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 49.3
8- DEPTH DRILLED INTO ROCK: 66.4
9- TOTAL DEPTH OF HOLE: 115.7
10- SIZE AND TYPE OF BIT: 4x5¼" Bottom Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED
14- TOTAL NO. CORE BOXES: 9
15- ELEV. GROUND WATER: 28.0
16- DATE HOLE: STARTED 9/17/62; COMPLETED 9/19/62
17- ELEV. TOP OF HOLE: 48.0
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19- SIGNATURE OF INSPECTOR: E. Humphrey

ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
		D	Sandy claystone, cemented, fossiliferous, w/numerous sandstone lenses.	100		7	
				98		8	E1.-56.5-0.1' of good core ground up in hole
-61.0	109.0			100			
		D	Claystone				
-63.7	111.7	E	Sandstone, well cemented, fossiliferous	100		9	
-65.5	113.5						
-67.7	115.7	D	Claystone				Bottom of Hole
			Plugged hole w/7 bags of cement				

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

DRILLING LOG

HOLE NO. 133 — SHEET 1 OF 1

1- PROJECT: Claiborne Dam Site
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 133
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 50.1
8- DEPTH DRILLED INTO ROCK: 49.1
9- TOTAL DEPTH OF HOLE: 99.2
10- SIZE AND TYPE OF BIT: 4x5¼" Bottom Disc.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED
14- TOTAL NO. CORE BOXES: 9
15- ELEV. GROUND WATER: 30.1
16- DATE HOLE: STARTED 10/26/62; COMPLETED 10/29/62
17- ELEV. TOP OF HOLE: 46.9
18- TOTAL CORE RECOVERY FOR BORING (%): 98
19- SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			Clayey silt, brown.				Dry samples taken in overburden. Samples discarded.
-36.9	10.0		Sandy clay, brown, medium plasticity.				(Water Level, AM-10/26/62- El. 26.1; Hole 64.5' deep
-11.9	35.0		Clay, fat, grey				
-6.9	40.0		Clayey sand, grey				
-0.9	46.0		Sand & gravel				
-0.1	47.0		Silty sand, grey.				
-3.2	50.1						Top of Rock
		B to D	Sand, tightly consolidated with thin pockets and seams of claystone	100 / 100		1	
-9.2	56.1	C to D	Sand, w/claystone pockets. Two cemented zones 0.2' thick	88			
-13.6	60.5	C to C	Sand, tightly consolidated, fossiliferous.	90		2	
-17.3	64.2	C to D	Claystone, with sandstone laminae & pockets				Top of Sound Rock El.-17.6
-19.6	66.5	D to D	Sandstone with claystone pockets & laminae, fossiliferous	100			E1. -20.4 to -20.9 vert. Joint
-22.0	68.9						" -25.9 to -26.2 " " partly open
		C to D	Claystone, with three "B" zones ranging from 0.1 to 0.3' thick.	100		3	E1.-26.6 to -27.0 Joint, 80°, open
				100		4	" -31.6 to -32.0 V. Joint, open
				100		5	" -37.4 to -37.8 "B" zone " -39.1 to -39.3 " "
-41.1	88.0	E	Claystone	100			8 bags cement pumped in hole
-42.1	89.9	C to E	Sandstone, fossiliferous, with claystone pockets & thin seams.	100		6	2" marker set
-48.7	95.6	E to E	Claystone, with sandstone pockets & two .1' sandseams. Hardness B	100		7	
-52.3	99.2						Bottom of Hole

HOLE NO. 127

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

DRILLING LOG

SHEET 1 OF 3

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 127
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 66.2
8- DEPTH DRILLED INTO ROCK: 42.2
9- TOTAL DEPTH OF HOLE: 108.4
10- SIZE AND TYPE OF BIT: 7⅝ x 6" Bottom Dis.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 41 / UNDISTURBED 17
14- TOTAL NO. CORE BOXES: 7
15- ELEV. GROUND WATER: 43
16- DATE HOLE: STARTED 11/29/62; COMPLETED 12/8/62
17- ELEV. TOP OF HOLE: 53.8
18- TOTAL CORE RECOVERY FOR BORING (%): 99
19- SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
52.3	1.5		Silty sand, brown.				Scale 1"=5'
50.8	3.0		Clayey sand, brown				
49.3	4.5		Sandy clay, brown.				Split-Spooned overburden continously
47.8	6.0		Clayey sand, brown.				
46.3	7.5		Silty sand, brown.				
			Sandy clay, brown.				
40.3	13.5						
			Clayey sand, brown.				
34.3	19.5						
			Silty sand, brown.				
31.3	22.5						
29.8	24.0		Clayey sand, brown.				
			Silty sand, brown.				
26.8	27.0						
25.3	28.5		Clayey sand, brown.				
			Silty sand, brown.				
23.8	30.0						
			Sandy clay, brown. Med. plasticity.				
20.0	33.0						
			Silty sand, brown.				
14.8	39.0						
			Sandy clay, brown.				
13.3	40.5						
			Clay, sl/sandy, fat				

HOLE NO. 127

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

DRILLING LOG

SHEET 2 OF 3

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 127
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 66.2
8- DEPTH DRILLED INTO ROCK: 42.2
9- TOTAL DEPTH OF HOLE: 108.4
10- SIZE AND TYPE OF BIT: 7⅝ x 6" Bottom Dis.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 41 / UNDISTURBED 17
14- TOTAL NO. CORE BOXES: 7
15- ELEV. GROUND WATER: 19.3
16- DATE HOLE: STARTED 11/29/62; COMPLETED 12/8/62
17- ELEV. TOP OF HOLE: 53.8
18- TOTAL CORE RECOVERY FOR BORING (%): 99
19- SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			Clay, sl/sandy, fat.				
-3.2	57.0		Gravelly sand				
-7.7	61.5						E1. -7.7 Base of alluvial material
-9.6	63.4	C to B	Clayey sand, fossiliferous, consolidated	100			
-12.4	66.2						
-14.5	68.3	E	Sandstone, fossiliferous, w/claystone pockets & seams. Cemented.	100		1	Top of Rock & Top of Sound Rock
-16.3	70.1	E to D	Claystone, fossiliferous, with sandstone pockets & lenses				
		E to D	Claystone, sl/fossiliferous, cemented with uncemented zones	100		2	
-21.4	75.2						
-22.9	76.7	E	Claystone, fossiliferous, with sandstone pockets & seams	100			
		D					
		E	Claystone, sl/fossiliferous	100		3	E1. -31.8 to -34.2 Badly jointed and fractured
		D		100			
		E to D					
				100		4	
36.3	90.1	E to D	Claystone, fossiliferous, with sandstone pockets & seams.				
-39.8	93.7	D-C	Claystone, uncemented	94		5	
-40.5	93.9	E	Sandstone, w/claystone pockets, cemented.				E1. -39.8 to -40.5 Hardness D to C
-41.8	95.2	E to E	Sandstone, fossiliferous, cemented w/uncemented pockets				
-44.1	97.3						
		E	Claystone, w/sandstone pockets	100		6	
-46.0	99.2						

HOLE NO. 127

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

DRILLING LOG

SHEET 3 OF 3

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 127
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: VERTICAL / INCLINED — DEGREES WITH VERTICAL
7- THICKNESS OF OVERBURDEN: 66.2
8- DEPTH DRILLED INTO ROCK: 42.2
9- TOTAL DEPTH OF HOLE: 108.4
10- SIZE AND TYPE OF BIT: 7⅝x6" Bottom Disc.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 41 / UNDISTURBED 17
14- TOTAL NO. CORE BOXES: 7
15- ELEV. GROUND WATER: 19.3
16- DATE HOLE: STARTED 11/29/62; COMPLETED 12/8/62
17- ELEV. TOP OF HOLE: 53.8
18- TOTAL CORE RECOVERY FOR BORING (%): 99
19- SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX NO.	SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-47.2	101.0	D	Sandstone, w/claystone pockets				
		E	Claystone, w/sandstone pockets, tightly consolidated, uncemented w/cemented zones. Two loosely consolidated sand layers.	100		6	E1. -48.4 to -48.5 Sand layers. Hardness B E1.-53.6 to -54.1 "
				88		7	
-54.6	108.4						Bottom of Hole
			14 bags of cement pumped into hole				

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
CLAIBORNE LOCK AND DAM
NEAR CLAIBORNE, ALABAMA
DESIGN MEMORANDUM NO. 4
LOGS OF BORINGS IN THE LOCK AND GATED SPILLWAY AREA

SH. REF. NO. | SPEC. NO. | SIZE | FILE NO.
DRAWING NO.
SCALE: | DATE: | SHEET

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED

DRILLING LOG — HOLE NO. 137 (Sheet 1 of 3)

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 137
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 70.0
8- DEPTH DRILLED INTO ROCK: 32.2
9- TOTAL DEPTH OF HOLE: 102.2
10- SIZE AND TYPE OF BIT: 4x5¼" Bottom Dis.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 5
15- ELEV. GROUND WATER: 18.9
16- DATE HOLE: STARTED 11/15/62; COMPLETED 11/28/62
17- ELEV. TOP OF HOLE: 50.9
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19. SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
48.4	2.5		Silty sand, brown.			Dry samples taken in overburden. Samples discarded.
			Sandy clay, brown. Med. plasticity.			Scale 1"=5'
42.9	8.0					
			Silty sand, brown.			
34.9	16.0					
			Clayey sand, brown.			
24.9	26.0					
			Silty sand, brown.			
1.9	49.0					

DRILLING LOG — HOLE NO. 137 (Sheet 2 of 3)

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

1- PROJECT: Claiborne Lock & Dam Site
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 137
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 70.0
8- DEPTH DRILLED INTO ROCK: 32.2
9- TOTAL DEPTH OF HOLE: 102.2
10- SIZE AND TYPE OF BIT: 4x5¼" Bottom Dis.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 5
15- ELEV. GROUND WATER: 18.9
16- DATE HOLE: STARTED 11/15/62; COMPLETED 11/28/62
17- ELEV. TOP OF HOLE: 50.9
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19. SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
			Sand & gravel			
-19.1	70.0					NOTE: A calyx hole was drilled at this location and the top of sound rock was set at El.-25.1
-20.0	70.9	E to C	Sandstone fossiliferous, with claystone pockets	100		Top of Rock
		D to E	Sandstone, clayey, fossil.	100		
-21.7	72.6	E to C	Claystone, sl/fossiliferous, cemented, w/tightly consolidated, uncemented zones.	100	1	El.-22.6 to -23.4 V.Joint, open; " -25.5 to -25.9 " " " ; " -34.5 to -34.8 70° Joint, open; " -35.8 to -36.3 Jointed & fractured
-25.5	76.4	E to C	Claystone, cemented, w/tightly consolidated; uncemented zones. Badly jointed & fractured.	100	2	
-29.5	80.4	E to D	Claystone, sl/fossiliferous, cemented, w/tightly consolidated uncemented zones.			
-35.8	86.7	D to E	Claystone, sl/fossiliferous, tightly consolidated, uncemented, with cemented zones	96	3	
-41.6	92.5	E	Sandstone, fossiliferous cemented, w/thin seams of claystone, w/.1' sand layer	98	4	Depth 76.4 to 80.4 core, when extracted from core barrel, parted into pieces of various sizes
-44.8	95.7	C	Claystone, fossiliferous with sand pockets, uncemented	92		
-46.3	97.2	E	Sandstone, fossiliferous			
-47.6	98.5		Cont'd Sheet 3			

DRILLING LOG — HOLE NO. 137 (Sheet 3 of 3)

DEPARTMENT OF THE ARMY — DIVISION: Mobile District — INSTALLATION: Corps of Engineers

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 137
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 70.0
8- DEPTH DRILLED INTO ROCK: 32.2
9- TOTAL DEPTH OF HOLE: 102.2
10- SIZE AND TYPE OF BIT: 4x5¼" Bottom Dis.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0
14- TOTAL NO. CORE BOXES: 5
15- ELEV. GROUND WATER: 18.9
16- DATE HOLE: STARTED 11/16/62; COMPLETED 11/28/62
17- ELEV. TOP OF HOLE: 50.9
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19. SIGNATURE OF INSPECTOR: J. Morton

ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
-51.3	102.2	E to D	Claystone, fossiliferous, with sandstone pockets and few thin scattered seams.		5	
			5 bags cement pumped into hole.			Bottom of Hole. El.-42.3 thin sand layer; El.-43.8 " "
						Hardness Scale: A-Soft as mud; B-Penetrated w/pencil; C- " w/knife; D-Cut " ; E-Scratch " ; F-Can't " "

DRILLING LOG — HOLE NO. 138 (Sheet 1 of 3)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 138
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 70.8
8- DEPTH DRILLED INTO ROCK: 50.6
9- TOTAL DEPTH OF HOLE: 121.4
10- SIZE AND TYPE OF BIT: 4"X5¼" B. Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED; UNDISTURBED
14- TOTAL NO. CORE BOXES: 7
15- ELEV. GROUND WATER: 19.9
16- DATE HOLE: STARTED 1-22-64; COMPLETED 1-27-64
17- ELEV. TOP OF HOLE: 52.9
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19. SIGNATURE OF INSPECTOR: James E. Morton

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
50.9	2.0		Silty sand, brown			SCALE 1"=5' Spiral type auger used in drilling until ground water encountered. Fishtailed bit used in drilling from water table to top of rock
			Sandy clay, brown			
42.9	10.0					
			Clayey sand, brown			
17.9	35.0					
			Sandy clay, brown			

Continued on sheet No. 2

DRILLING LOG — HOLE NO. 138 (Sheet 2 of 3)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne Lock and Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 138
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 70.8
8- DEPTH DRILLED INTO ROCK: 50.6
9- TOTAL DEPTH OF HOLE: 121.4
10- SIZE AND TYPE OF BIT: 4"X5¼" B. Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED; UNDISTURBED
14- TOTAL NO. CORE BOXES: 7
15- ELEV. GROUND WATER: 19.9
16- DATE HOLE: STARTED 1-22-64; COMPLETED 1-27-64
17- ELEV. TOP OF HOLE: 52.9
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19. SIGNATURE OF INSPECTOR: James E. Morton

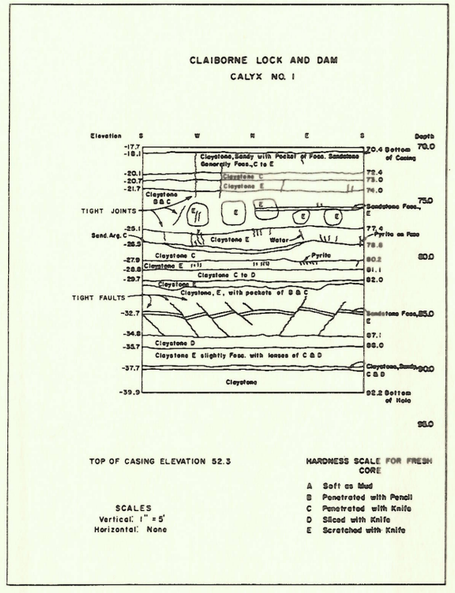
ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
-0.1	53.0		Sand and gravel			
-12.1	65.0		Sandy clay, gray			
-17.9	70.8	E to C	Sandstone, fossiliferous, with claystone seams	29		Top of rock. Core loss caused by gravel in hole.
-19.6	72.5	E to D	Claystone, fossiliferous, with sandstone pockets and lenses	83		
-21.9	74.8	C to E	Claystone	88	1	
-24.4	77.2	C to E	Claystone, jointed and fractured	100		
-28.5	81.4					Top of sound rock
		E to D	Claystone, fossiliferous, with sandstone pockets	100	2	El.-22.4 to -22.8 Jointed and fractured; El.-24.3 to -25.1 Joint, vert., open, partly fractured
				100	3	El.-25.5 to -25.7 Joint, 45° open; El.-25.7 to -26.8 Joint, vert., fractured; El.-27.3 to -28.5 Badly jointed and fractured; El.-33.2 to -33.5 Joint, vert., open, fractured; El.-33.5 to -33.7 Joint, vert. cemented; El.-33.7 to -33.8 Joint, 45° open; El.-35.9 to -36.0 Joint, 45°, open; El.-39.1 to -40.0 Joint, vert., partly fractured
-40.5	93.6	C-D	Sandstone, argillaceous	100		
-41.3	94.4	C-E	Claystone w/sandstone pockets			
-42.5	95.6	E	Sandstone, fossiliferous			
-43.9	96.8	D-C	Claystone, fossiliferous, with sandstone pockets and lenses.	100	4	
-45.3	98.2	E-D	Sandstone, fossiliferous			

DRILLING LOG — HOLE NO. 138 (Sheet 3 of 3)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 138
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVERBURDEN: 70.8
8- DEPTH DRILLED INTO ROCK: 50.6
9- TOTAL DEPTH OF HOLE: 121.4
10- SIZE AND TYPE OF BIT: 4"X5¼" B. Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13- TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED; UNDISTURBED
14- TOTAL NO. CORE BOXES: 7
15- ELEV. GROUND WATER: 19.9
16- DATE HOLE: STARTED 1-22-64; COMPLETED 1-27-64
17- ELEV. TOP OF HOLE: 52.9
18- TOTAL CORE RECOVERY FOR BORING (%): 97
19. SIGNATURE OF INSPECTOR: James E. Morton

ELEVATION	DEPTH	Hard Soil Scale	CLASSIFICATION OF MATERIALS (description)	% CORE RECOVERY	BOX NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
-48.1	101.0	C	Sandstone argillaceous		4	
-48.5	101.4					El.-41.5 to -42.5 Joint, vert., open
-50.4	103.4	E	Claystone, fossiliferous with sandstone pockets and lenses	100	5	
-55.0	108.0	E to C	Claystone with sandstone pockets and thin seams	100		
		E to D	Claystone with sandstone pockets and lenses	100	6	El.-65.0 to -65.1 sand, hardness "B"
				100	7	
-68.5	121.9					Bottom of hole
			10 bags of cement pumped into hole.			
						Hardness Scale: A- soft as mud; B- penetrate with pencil; C- penetrate with knife; D- cut with knife; E- scratch with knife; F- can't scratch with knife



U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
CLAIBORNE LOCK AND DAM
NEAR CLAIBORNE, ALABAMA
DESIGN MEMORANDUM NO. 4

LOGS OF BORINGS
IN THE LOWER LOCK AREA

SH. REF. NO.	SPEC. NO.	SIZE	FILE NO.
			DRAWING NO.
	SCALE:	DATE:	SHEET

CORPS OF ENGINEERS | 4 | 3 | 2 | 1 | U. S. ARMY

REVISIONS				
SYM.	ZONE	DESCRIPTION	DATE	APPROVED

DRILLING LOG — HOLE NO. 149 (SHEET 1 OF 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 149
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVER-BURDEN: 51.5
8- DEPTH DRILLED INTO ROCK: 42.2
9- TOTAL DEPTH OF HOLE: 93.7
10- SIZE AND TYPE OF BIT: 6"X5¼" B. Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED: 17; UNDISTURBED: 0
14- TOTAL NO. CORE BOXES: 6
15- ELEV. GROUND WATER: 18.1
16- DATE HOLE: STARTED: 12-5-63; COMPLETED: 12-10-63
17- ELEV. TOP OF HOLE: 35.6
18- TOTAL CORE RECOVERY FOR BORING (%): 99
19- SIGNATURE OF INSPECTOR: Joe L. McReynolds

Elevation	Depth	Hardness	Classification of Materials (description)	% Core Recovery	Sample No.	Remarks (drilling time, water loss, depth of weathering, etc., if significant)
						SCALE 1"=5'
			Clay, sl/micaceous, brown (CL)			
-29.6	6.0					
-28.1	7.5		Sand, clayey, fn. grain, sl/mica., brown (SC)			
			Sand, silty, fn. grain, sl/mica., brown (SM)			
-25.1	10.5					Overburden sampled w/split spoon.
			Sand, clayey, fn. grain, sl/mica., brown (SC)			
-20.6	15.0					
			Sand, silty, sl/mica., fn. grain, brown. (SM)			
-7.4	43.0		Gravel and sand, sl/clayey (GP)			

DRILLING LOG — HOLE NO. 149 (SHEET 2 OF 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 149
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVER-BURDEN: 51.5
8- DEPTH DRILLED INTO ROCK: 42.2
9- TOTAL DEPTH OF HOLE: 93.7
10- SIZE AND TYPE OF BIT: 6"X5-1/2" Bottom Disch.
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED: 12; UNDISTURBED: 0
14- TOTAL NO. CORE BOXES: 6
15- ELEV. GROUND WATER: 18.1
16- DATE HOLE: STARTED: 12-5-63; COMPLETED: 12-10-63
17- ELEV. TOP OF HOLE: 35.6
18- TOTAL CORE RECOVERY FOR BORING (%): 99
19- SIGNATURE OF INSPECTOR: Joe L. McReynolds

Elevation	Depth	Hardness	Classification of Materials (description)	% Core Recovery	Sample No.	Remarks (drilling time, water loss, depth of weathering, etc., if significant)
-15.7	51.3		Gravel and sand, sl/clayey (GP)			Top of rock
		E	Interbedded lamina and lenses of claystone and sandstone	100	1	E1. -17.3 Top of sound rock
-18.4	54.0			100		E1.-16.3 Hard. C to D; E1.-16.7 to -17.0 Hard. C to D.
		E & D	Claystone w/scattered sandstone lenses and lamina	100	2	E1.-22.3 to -22.6 joint, vert., open; E1.-23.1 to -26.1 joint, vert., tight.
		D		94		E1.-25.6 to -26.2 joint, 80°-dip-tight.
-33.1	68.7	D & E	Claystone w/one sandy zone.	100	3	E1.-24.1 to -25.2 core badly broken; E1.-26.5 to -27.3 joint, vert. tight; E1.-27.3 to -27.6 joint, 85° dip, open, slickensided; E1.-29.0 to -30.0 several intersecting joints, tight; E1.-30.2 to -31.9 joint, vert., tight.
-38.7	74.3					
-39.6	75.4	E	Sandstone w/claystone lenses			
-40.7	76.3	E	Sandstone, fossiliferous	100	4	E1. -37.3 to -38.3 core badly broken.
-42.4	78.0	C	Sandstone, arg., w/claystone lenses			
		E	Sandstone, sl/fossiliferous			
-44.9	80.5	E & D	Interbedded lenses and lamina of sandstone and claystone	94		HARDNESS SCALE: A - soft as mud; B - penetrate w/pencil; C - penetrate w/knife; D - slice w/knife; E - scratch w/knife; F - can't scratch w/knife
-47.0	82.4	D	Claystone w/rare sandstone lenses			
-48.1	83.7	D & E	Interbedded lenses & lamina of claystone and sandstone	100	5	
-49.7	85.7	D	Claystone, sandy			
		E & D				
-53.2	88.6	E & D	Sandstone, argillaceous			
-54.6	90.2	D & E	Claystone	100	6	
-58.1	93.7		Hole backfilled with 7 sacks of cement			Bottom of hole

DRILLING LOG — HOLE NO. 148 (SHEET 1 OF 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 148
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVER-BURDEN: 7.9
8- DEPTH DRILLED INTO ROCK: 44.7
9- TOTAL DEPTH OF HOLE: 52.6
10- SIZE AND TYPE OF BIT: 6"X5¼" B. Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED: -; UNDISTURBED: -
14- TOTAL NO. CORE BOXES: 6
15- ELEV. GROUND WATER: River
16- DATE HOLE: STARTED: 10-31-63; COMPLETED: 11-1-63
17- ELEV. TOP OF HOLE: -2.2
18- TOTAL CORE RECOVERY FOR BORING (%): 94
19- SIGNATURE OF INSPECTOR: James E. Morton

Elevation	Depth	Hardness	Classification of Materials (description)	% Core Recovery	Sample No.	Remarks (drilling time, water loss, depth of weathering, etc., if significant)
						SCALE 1"=5'
			Gravelly sand			
- 6.2	4.0		Silty sand			
-10.1	7.9	E	Claystone, fossiliferous with sandstone pockets and lenses	0.0		Top of rock. E1. -10.1
		C		00		
-13.3	11.1	E &	Sandstone with 0.2' thick sand seam (B)		1	E1. -10.1 to -11.6 ground away in setting casing.
		B				Top of sound rock
-16.1	13.9	D	Claystone	95		
-16.9	14.7	E & D	Sandstone with 0.3' thick claystone seam.			
-18.4	16.2	C				E1.-12.7 to -13.0, joint, vert., open; E1.-13.6 to -14.5, joint, vert, open
-20.6	18.4	E	Claystone			
-23.3	21.1	E to D	Claystone, badly jointed and fractured.	100	2	E1.-18.9 to -19.2, joint, vert., open; E1.-20.2 to -20.6, joint, vert., open
		D	Claystone			
-25.5	23.3	D & E	Claystone with sandstone pockets & lenses, badly jointed and fractured	100		E1.-21.0 to -23.3, badly jointed; E1.-25.3 to -25.9 jointed and broken
-28.0	25.6	D	Claystone			
-29.7	27.5	E to D	Sandstone with claystone pockets and seams.		3	E1.-34.5 to -34.7 joint, vert., open; E1.-45.4 to -45.8(3) closed joints, 25° - 45° -60°
-31.8	29.6	D	Claystone	100		E1.-50.1 to -50.5 joint, vert., open
-33.7	31.5	E-D	Claystone w/sandstone seams			E1.-50.9 to -51.2 joint, vert., open
-34.4	32.2	E	Sandstone with claystone pockets			E1.-51.7 to -52.0 joint, vert., open
-35.9	33.7	B to C	Clayey sand, consolidated	100	4	
-37.1	34.9	E to D	Sandstone, med. to fine grained with few small claystone pockets			
-39.9	37.7	E to D	Sandstone with claystone pockets and lenses	100		
-41.9	39.7	E to D	Claystone with sandstone pockets and lenses. Two 1/8" to 1/4" thick sand seams (B)		5	E1.-46.4 highly fossiliferous zone with little organic material
-45.5	43.3	D & E	Claystone with few sandstone seams and pockets	100		
-51.8	49.6			90	6	

DRILLING LOG — HOLE NO. 148 (SHEET 2 OF 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne Lock & Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 148
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVER-BURDEN: 7.9
8- DEPTH DRILLED INTO ROCK: 44.7
9- TOTAL DEPTH OF HOLE: 52.6
10- SIZE AND TYPE OF BIT: 6"X5¼" B. Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED: -; UNDISTURBED: -
14- TOTAL NO. CORE BOXES: 6
15- ELEV. GROUND WATER: River
16- DATE HOLE: STARTED: 10-31-63; COMPLETED: 11-1-63
17- ELEV. TOP OF HOLE: -2.2
18- TOTAL CORE RECOVERY FOR BORING (%): 94
19- SIGNATURE OF INSPECTOR: James E. Morton

Elevation	Depth	Legend	Classification of Materials (description)	% Core Recovery	Sample No.	Remarks (drilling time, water loss, depth of weathering, etc., if significant)
		D	Claystone	90	6	
-54.8	52.6		7 bags cement pumped into hole			Bottom of hole

Scale of Hardness:
A- soft as mud
B- penetrate with pencil
C- penetrate with knife
D- cut with knife
E- scratch with knife
F- can't scratch with knife

DRILLING LOG — HOLE NO. 173 (SHEET 1 OF 1)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne L&D
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 173
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVER-BURDEN: 11.3
8- DEPTH DRILLED INTO ROCK: 36.7
9- TOTAL DEPTH OF HOLE: 48.0
10- SIZE AND TYPE OF BIT: 6x7 STA & 4x5¾"
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED: -; UNDISTURBED: -
14- TOTAL NO. CORE BOXES: 6
15- ELEV. GROUND WATER: River
16- DATE HOLE: STARTED: 6/13/64; COMPLETED: 6/23/64
17- ELEV. TOP OF HOLE: -0.7
18- TOTAL CORE RECOVERY FOR BORING (%): 98
19- SIGNATURE OF INSPECTOR: J. McReynolds

Elevation	Depth	Hardness Scale	Classification of Materials (description)	% Core Recovery	Sample No.	Remarks (drilling time, water loss, depth of weathering, etc., if significant)
						SCALE 1"=5'
			(Overburden) Sand & gravel (No samples taken)			Samples sent to Lab. W.E.S. #1 El. -17.3 to -19.3; 2 El. -19.3 to -21.8; 3 El. -21.8 to -23.2
-12.0	11.3	D	Sandstone			Top of Rock
-12.1	11.4	D	Claystone			
-13.1	12.4	D & E	Claystone w/lenses of sandstone			
		E & D	Intermingled lenses & pockets of sandstone & claystone	100	1	
-14.5	13.8	C	Claystone			Top of Sound Rock El. -15.0
-12.7	15.0					
-16.1	15.4	E	Sandstone	100	2	
		C & D	Claystone	100		E1. -12.0 to -12.8 Two joints, vert. & 75°, open; E1. -13.0 to -13.9 Three joints, vert., open
-23.3	22.6					
-24.2	23.5	E	Claystone	100		
-24.8	24.1	D	Claystone			
-25.4	24.7	C	Claystone		3	
		D to E	Claystone, sandy	100		E1. -26.8 to -27.1 Joint, 75°, tight; E1. -29.0 to -29.4 Joint, 75°, tight; E1. -31.2 to -31.6 Joint, vert., tight
-27.1	26.4					
-27.7	27.0	C	Claystone			
		D to E	Claystone, sandy			
-29.8	29.1					
-31.2	30.5	C	Claystone	100		
-32.0	31.3	E	Claystone, sandy			
-32.5	31.6					
-33.4	32.9	D to C	Claystone		4	
		C	Claystone	94		
-35.4	34.7					
-36.4	35.7	E	Interbedded lenses, layers, & pockets of sandstone & claystone			
-37.4	36.7	E	Sandstone w/fossiliferous			
		C	Claystone, sandy w/a few thin sandstone layers			
-39.4	38.7					
-39.8	39.1	C	Sandstone, arg., sl/tess.			
		D & E	Sandstone, argillaceous w/one claystone pocket hardness C	93	5	
-43.6	42.9					
		D & E	Claystone w/numerous sandstone lenses & pockets			
-46.2	45.5					
-46.5	45.8	C	Sandstone, arg.	100	6	
-47.8	47.1	D	Claystone w/numerous lenses and pockets of sandstone			
-48.1	47.4	E	Sandstone			
-48.7	48.0	D to C	Claystone			Bottom of Hole
			Hole backfilled w/8 sacks of cement			

DRILLING LOG — HOLE NO. 146 (SHEET 1 OF 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne Lock and Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 146
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVER-BURDEN: 16.5
8- DEPTH DRILLED INTO ROCK: 41.5
9- TOTAL DEPTH OF HOLE: 58.0
10- SIZE AND TYPE OF BIT: 4"X5¼" B. Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED: -; UNDISTURBED: -
14- TOTAL NO. CORE BOXES: 6
15- ELEV. GROUND WATER: River
16- DATE HOLE: STARTED: 10-24-63; COMPLETED: 10-28-63
17- ELEV. TOP OF HOLE: 3.0
18- TOTAL CORE RECOVERY FOR BORING (%): 88
19- SIGNATURE OF INSPECTOR: James E. Morton

Elevation	Depth	Hardness	Classification of Materials (description)	% Core Recovery	Sample No.	Remarks (drilling time, water loss, depth of weathering, etc., if significant)
						SCALE 1"=5'
			Sand and gravel and gravelly sand			E1.-13.5 to -14.8 core loss due to gravel in hole.
-13.5	16.5					Top of rock
		C to E	Sandstone, slightly fossiliferous w/claystone pockets	23		
-15.6	18.6	E to D	Sandstone w/claystone pockets.	79		
-16.3	19.3					
		D to E	Claystone, slightly fossiliferous with sandstone pockets.	87	1	Top of sound rock. Broken core below E1.-17.5 caused in drilling.
-18.1	21.1					
		D	Claystone			
-21.8	24.8			100		
		E	Sandstone, fine grained.			
-24.6	27.4					
-25.0	28.0	D	Claystone			
-26.2	29.2	E	Sandstone, fine grained		2	E1.-16.6 to -17.5 and E1.-24.6 to -25.0 core is broken. E1.-27.4 to -28.0 broken and jointed.
-27.3	30.3	D	Claystone, sandy	100		
		C	Claystone			
-29.3	32.3					
-30.4	33.4	E	Sandstone, fine grained with claystone pockets			
		D	Claystone slightly fossiliferous	98		E1.-18.5 to -18.8 joint, 45° open; E1.-21.7 to -22.0 joint, open; E1.-22.5 to -22.8 joint, open; E1.-24.3 to -24.6 joint, vert. closed.
-33.4	36.4					
		E to D	Sandstone with thin seams and lenses of claystone		3	
-34.8	37.8					
		D	Claystone			
-36.8	39.8					
		E to D	Claystone with sandstone seams, fossiliferous	100		E1.-29.5 to -29.8, joint, vert. open. E1.-29.9 to -30.2, joint, vert. open. E1.-34.2 to -34.6, joint, vert. open. E1.-44.8 to -45.0, joint, vert. open
-38.2	41.2					
-39.0	42.0	E to D	Sandstone, highly fossiliferous, with claystone pockets.			
		D to C	Clayey sand, tightly consolidated			
-40.4	43.4				4	
		E to D	Sandstone, med. grained fossiliferous	100		
-43.8	46.8					

Continued on Sheet No. 2

DRILLING LOG — HOLE NO. 146 (SHEET 2 OF 2)

DEPARTMENT OF THE ARMY — DIVISION: Corps of Engineers — INSTALLATION: Mobile District

1- PROJECT: Claiborne Lock and Dam
2- LOCATION (Coordinates or Station):
3- DRILLING AGENCY: Mobile District
4- HOLE NO. (As shown on drawing title and file no.): 146
5- NAME OF DRILLER: A. Taylor
6- DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED; DEGREES WITH VERTICAL:
7- THICKNESS OF OVER-BURDEN: 16.5
8- DEPTH DRILLED INTO ROCK: 41.5
9- TOTAL DEPTH OF HOLE: 58.0
10- SIZE AND TYPE OF BIT: 4"X5¼" B. Discharge
11- DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12- MANUFACTURER'S DESIGNATION OF DRILL: Failing 750
13- TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED: -; UNDISTURBED: -
14- TOTAL NO. CORE BOXES: 6
15- ELEV. GROUND WATER: River
16- DATE HOLE: STARTED: 10-24-63; COMPLETED: 10-28-63
17- ELEV. TOP OF HOLE: 3.0
18- TOTAL CORE RECOVERY FOR BORING (%): 88
19- SIGNATURE OF INSPECTOR: James E. Morton

Elevation	Depth	Hardness	Classification of Materials (description)	% Core Recovery	Sample No.	Remarks (drilling time, water loss, depth of weathering, etc., if significant)
		D to E	Claystone with sandstone pockets and lenses, fossiliferous	90	5	
-52.0	55.0					
		E to D	Sandstone, fine grained, with claystone pockets and lenses.	78	6	
-55.0	58.0		6 bags of cement pumped into hole			Bottom of hole. Bottom 1.0' of core left in hole.

Scale of Hardness:
A- soft as mud
B- penetrate with pencil
C- penetrate with knife
D- cut with knife
E- scratch with knife
F- can't scratch with knife

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALA.

ALABAMA RIVER, ALABAMA
CLAIBORNE LOCK AND DAM
NEAR CLAIBORNE, ALABAMA
DESIGN MEMORANDUM NO. 4

LOGS OF BORINGS IN FIXED CREST SPILLWAY AND ABUTMENT AREA

SH. REF. NO. | SPEC. NO. | SIZE | FILE NO. | DRAWING NO. | SCALE | DATE | SHEET

5 | 4 | 3 | 2 | 1 | PLATE NO. 8