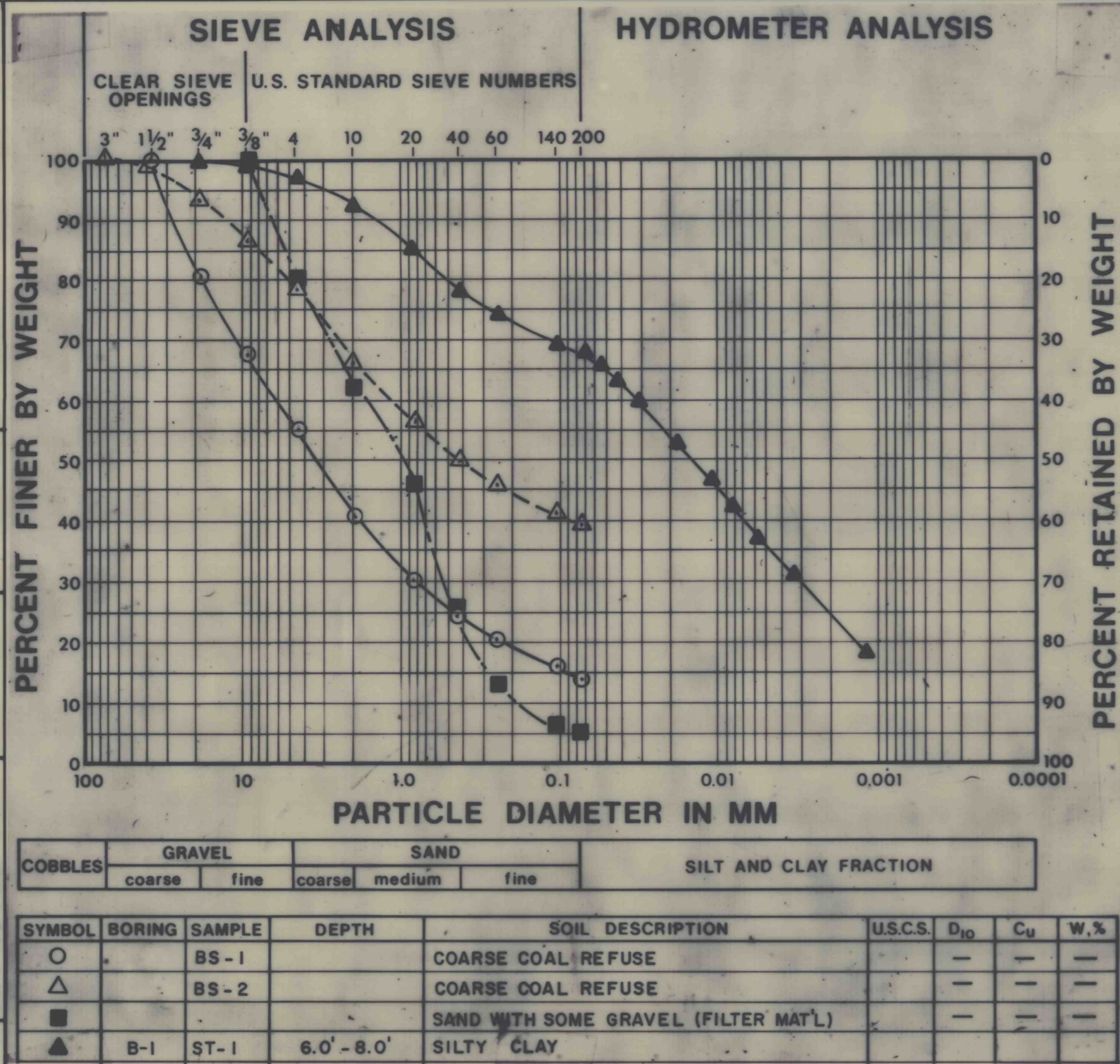


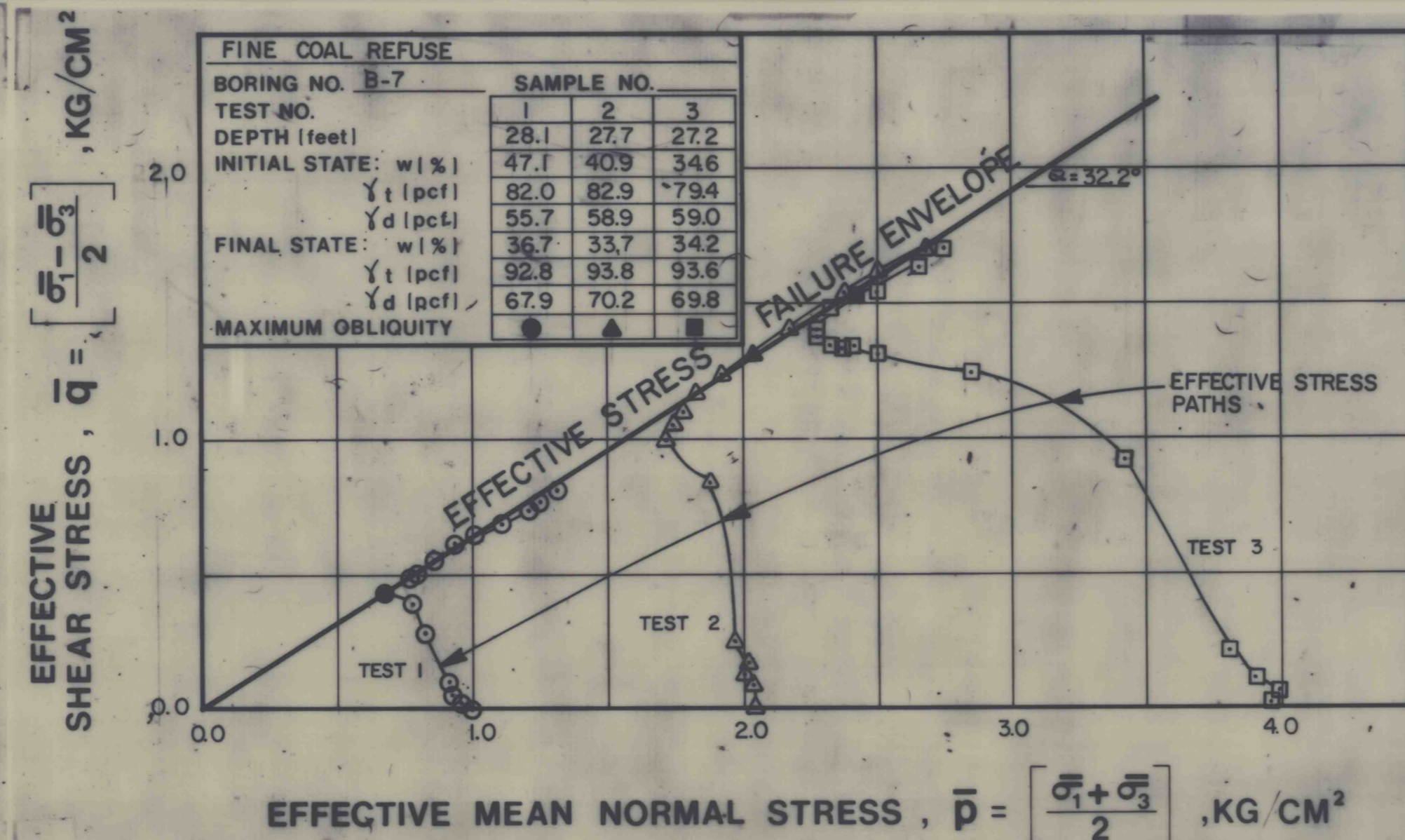
DRAWING NUMBER 78-359-E-9

CHECKED BY JUL 5-17-79 APPROVED BY

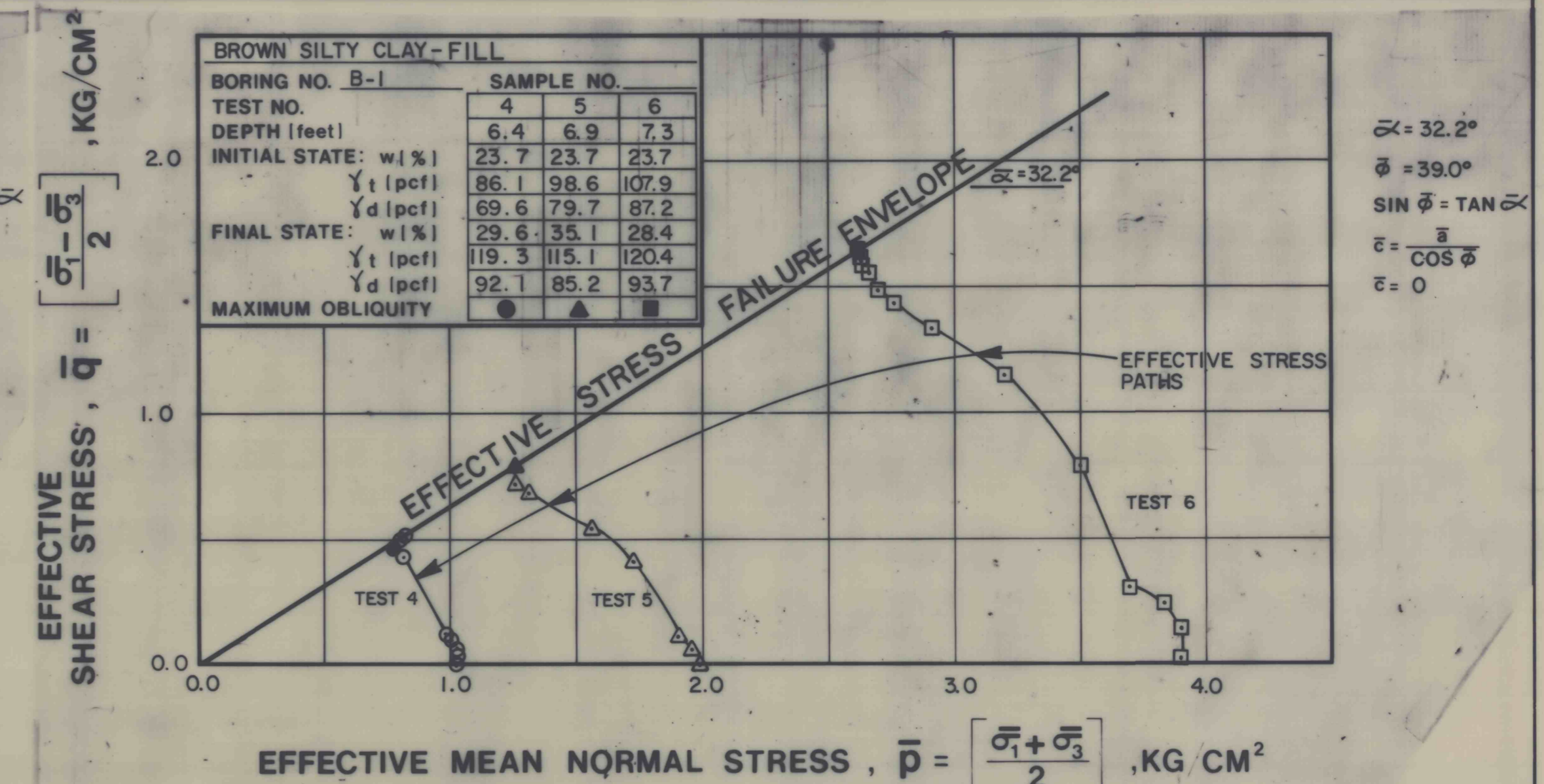
DRAWN BY



GRAIN SIZE ANALYSES

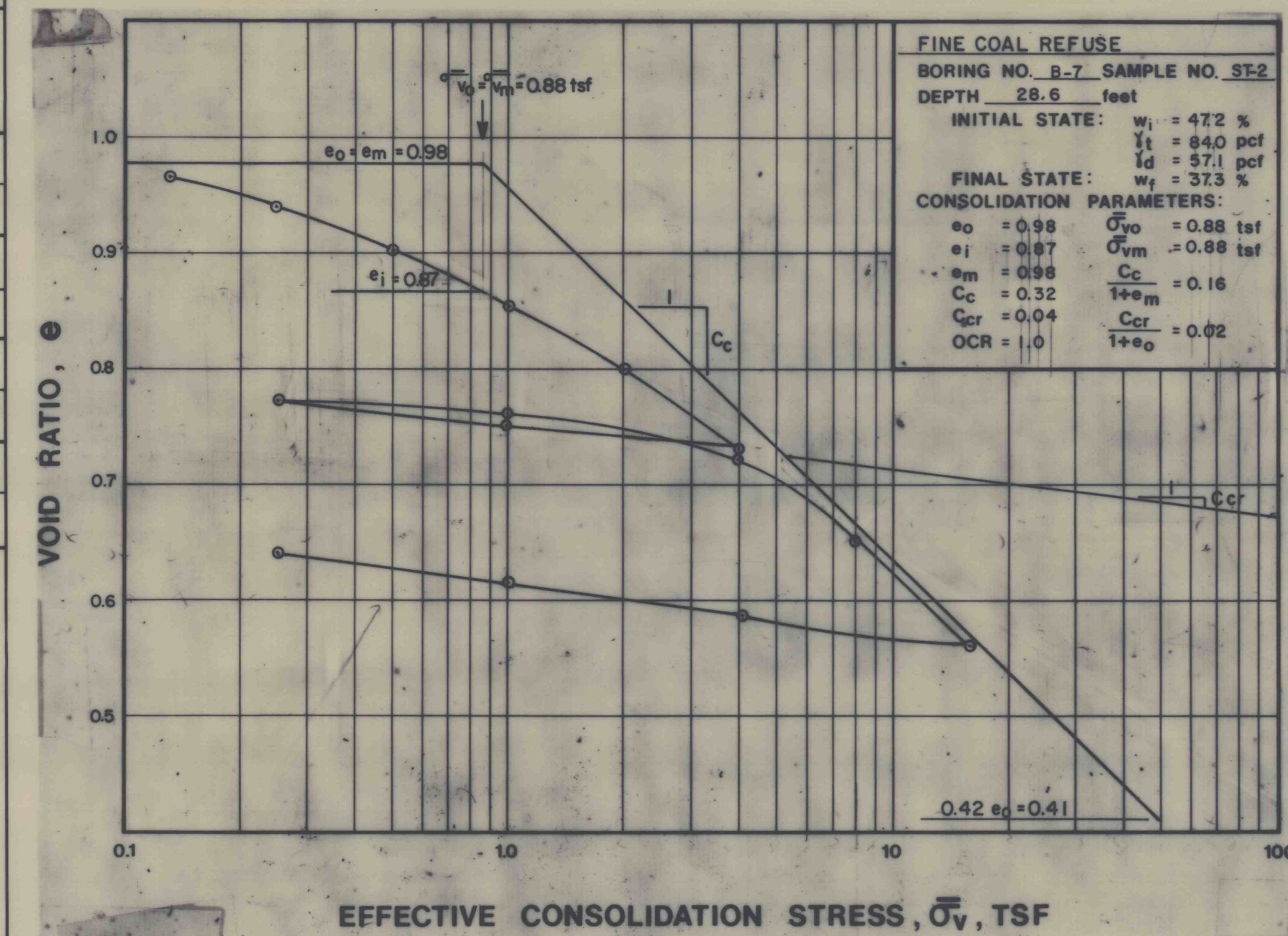


FINE COAL REFUSE

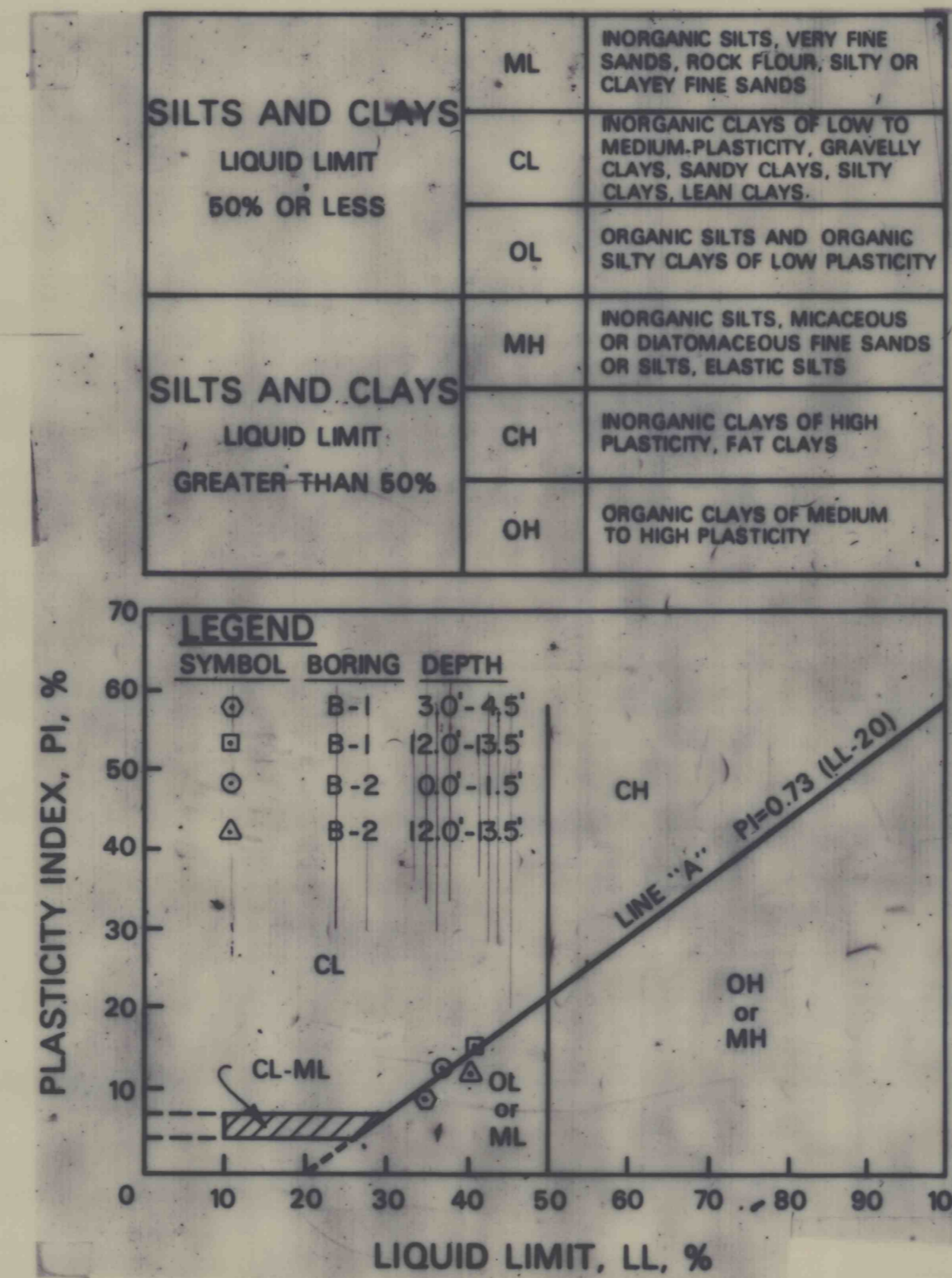


FILL-BROWN SILTY CLAY

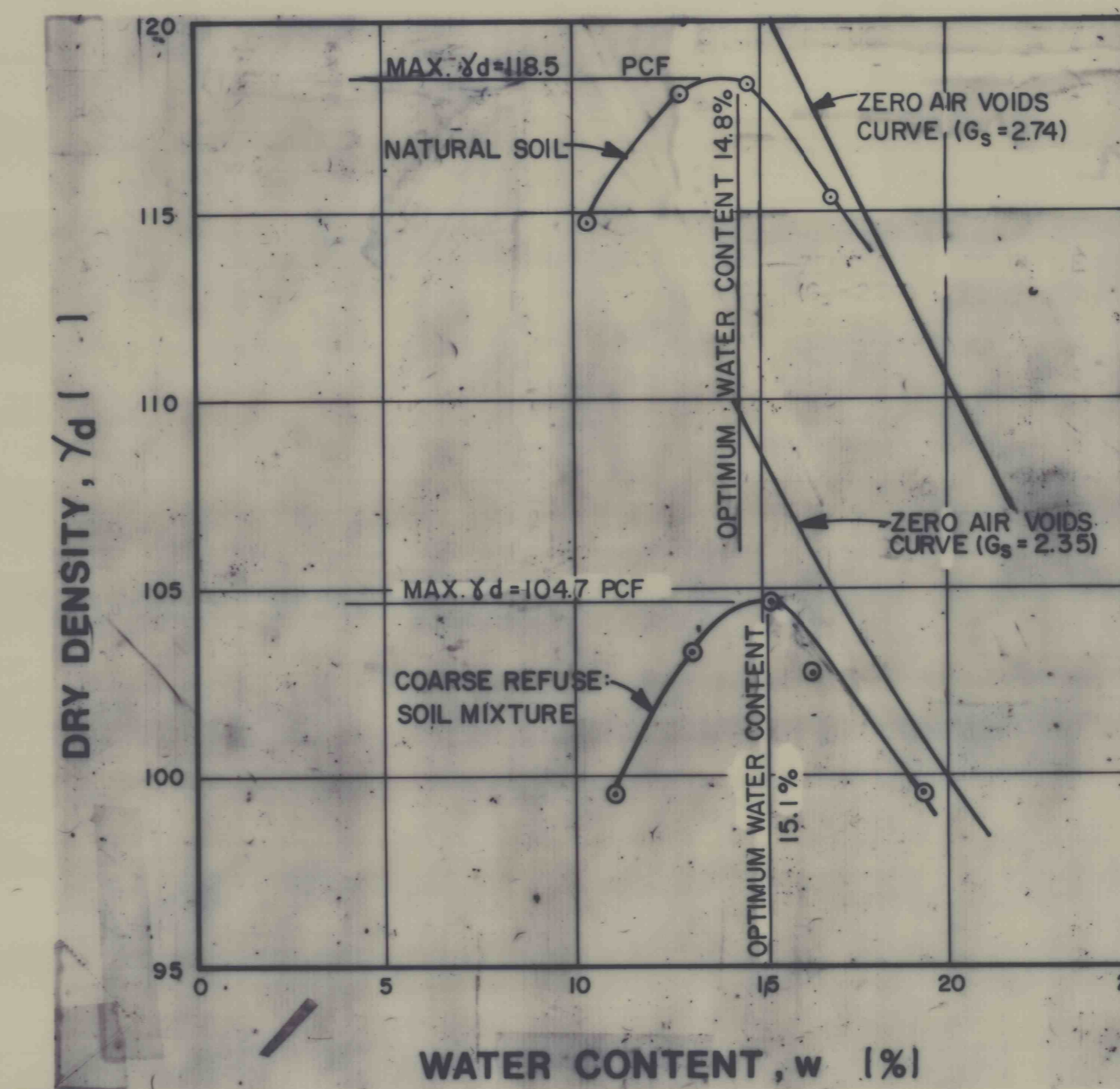
CONSOLIDATED UNDRAINED TRIAXIAL TESTS WITH PORE PRESSURE MEASUREMENTS



CONSOLIDATION TEST



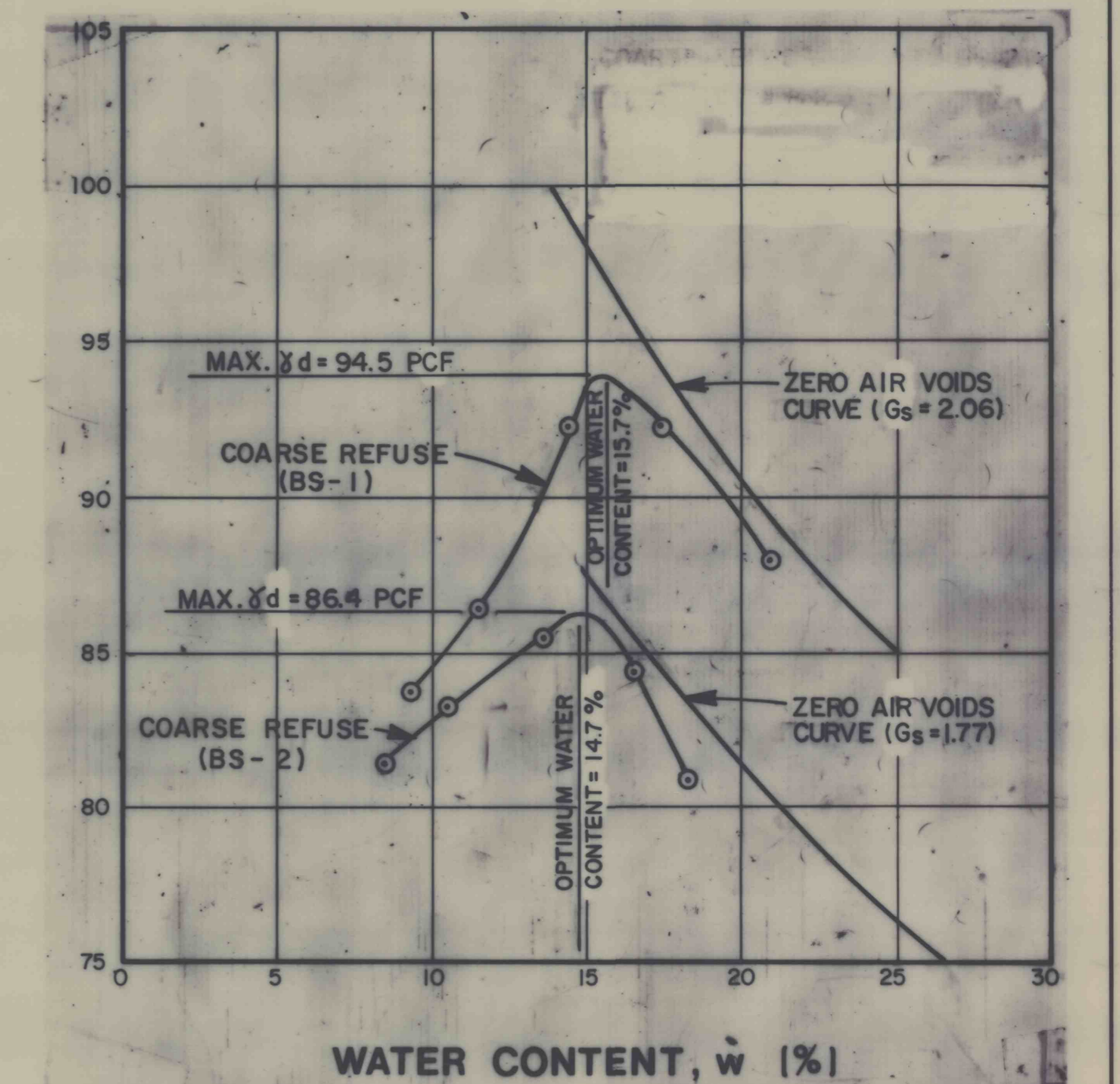
ATTERBERG LIMITS



ASTM DESIGNATION USED	STANDARD
MODIFIED-D1557	10" / 18" / 5

METHOD**	MATERIAL SIZE	MOLD SIZE	BLOWS*
A	ALL PASSING #4	4" DIA.	25
B	ALL PASSING #4	2" DIA.	55
C	ALL PASSING #4	4" DIA.	25
D	ALL PASSING #4	2" DIA.	55

COMPACTION TESTS
 SLURRY CONTAINMENT DIKE BORROW MATERIALS



DRAWING NO.	SHEET NO.	FIGURE NO.
78-359-E-9		10

LABORATORY TEST DATA

BETHLEHEM MINE No. 101
 CENTURY, WEST VIRGINIA
 PREPARED FOR

BETHLEHEM MINES CORPORATION
 BRIDGEPORT, WEST VIRGINIA

D'APPOLONIA

CONSOLIDATION PARAMETERS
 e_o - INITIAL VOID RATIO
 e_i - VOID RATIO AT IN SITU EFFECTIVE OVERBURDEN PRESSURE
 e_m - VOID RATIO AT MAXIMUM PAST VERTICAL CONSOLIDATION PRESSURE
 σ_{v0} - INITIAL VERTICAL STRESS
 σ_{vm} - MAXIMUM PAST VERTICAL CONSOLIDATION PRESSURE
 C_c - COMPRESSION INDEX
 C_{cr} - RECOMPRESSION INDEX
 C_v - COEFFICIENT OF CONSOLIDATION

SHEAR STRENGTH PARAMETERS
 σ₁, σ₃ - PRINCIPAL STRESS COMPONENTS
 q - SHEAR STRESS
 p - MEAN NORMAL STRESS
 α - SLOPE OF STRESS FAILURE ENVELOPE
 a - q AXIS INTERCEPT OF STRESS FAILURE ENVELOPE
 φ - ANGLE OF INTERNAL FRICTION
 c - COHESION
 SIN φ = TAN α, c = a / COS φ

INDEX PROPERTIES
 w - WATER CONTENT
 LL - LIQUID LIMIT
 PL - PLASTIC LIMIT
 PI - PLASTICITY INDEX
 D₁₀ - DIAMETER AT WHICH 10% OF THE SOIL IS FINER
 D₆₀ - DIAMETER AT WHICH 60% OF THE SOIL IS FINER
 C_u - COEFFICIENT OF UNIFORMITY (D₆₀/D₁₀)
 γ_t - WET UNIT WEIGHT
 γ_d - DRY UNIT WEIGHT

NOTE: SYMBOLS WITH LINE OVER LETTER, SUCH AS σ_{vm} MEAN EFFECTIVE PARAMETERS.

NOTE: SYMBOLS WITH LINE OVER LETTER, SUCH AS φ, MEAN EFFECTIVE PARAMETERS.