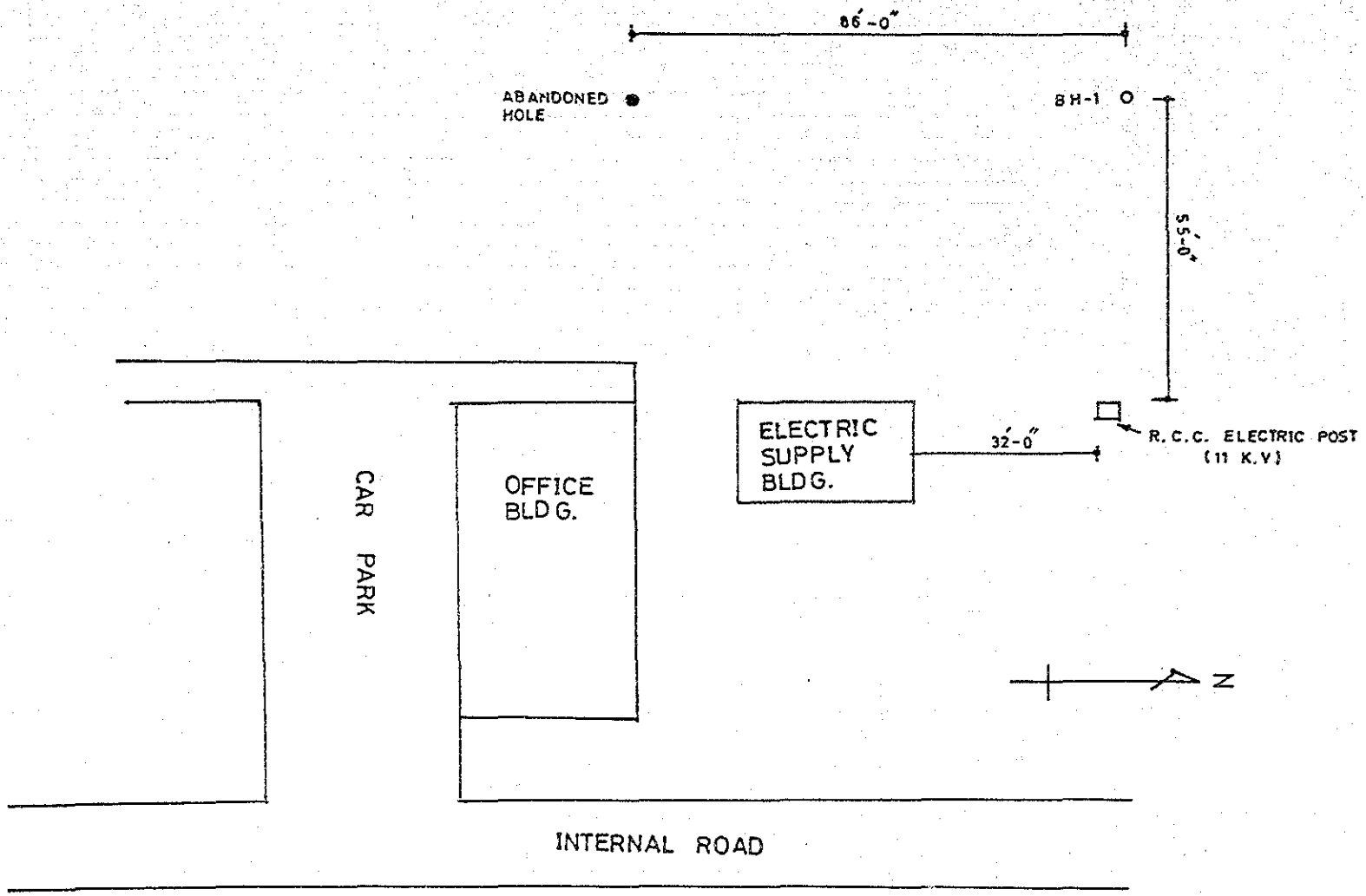
REPORT ON SUBSOIL INVESTIGATION AT SAVAR

N O V E M B E R 1 9 8 8

SOILTREAT, EQUIPMENT & ENGINEERING LTD.

GEOTECHNICAL ENGINEERING • HYDRAULIC STRUCTURES • SUPER STRUCTURES

SITE PLAN OF BORING POINT
SUBSOIL INVESTIGATION AT SAVAR
(High power Transmitting station)



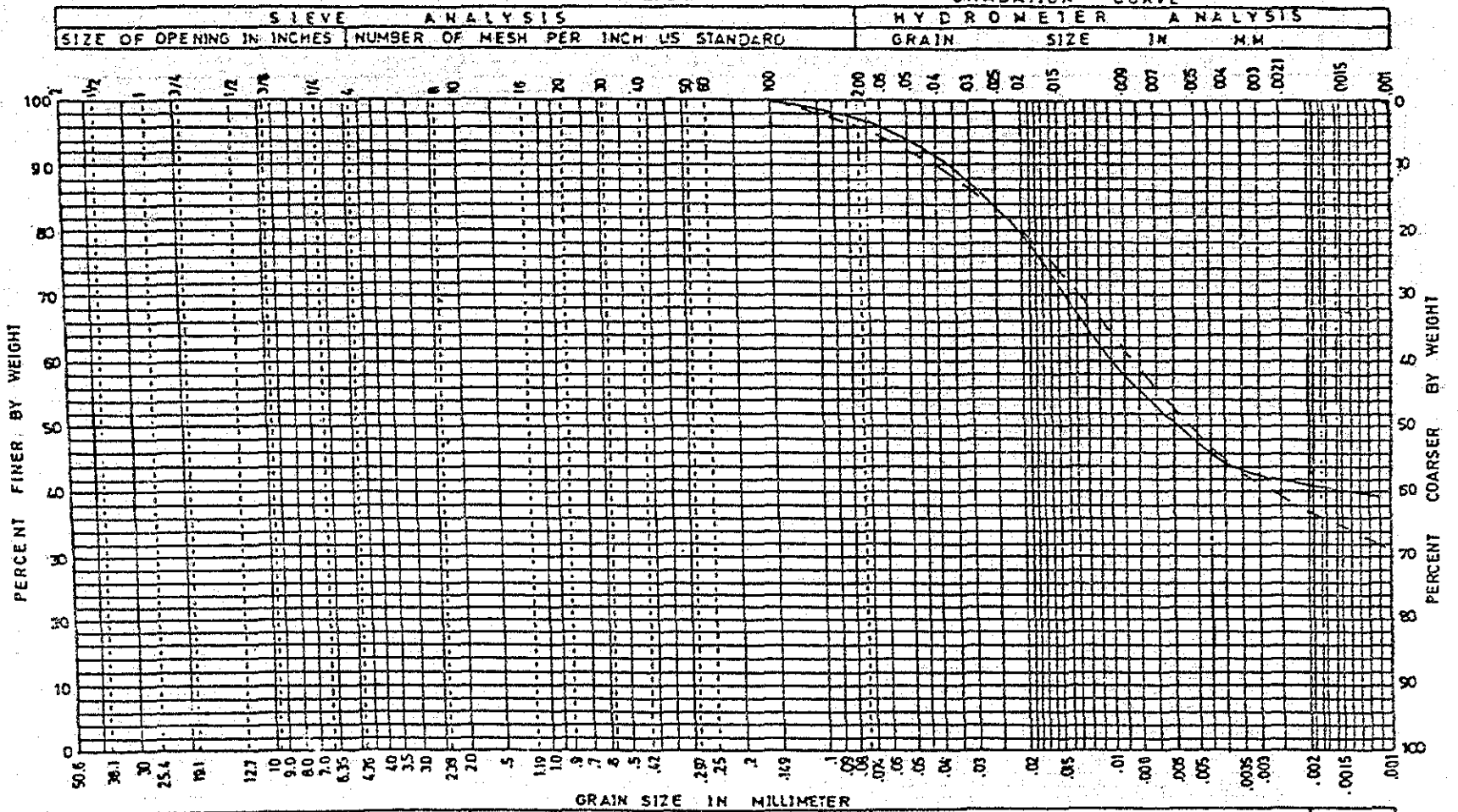
Soiltreat Equipment & Engg.Ltd. 76/A, Segun Bagicha. Dhaka	Project:- Sub soil investigation at Savar. Client:- All Japan Radio & Television Engineering Service Co. Ltd. Bore chart of boring no. 1
Method of boring:- Wash boring Diameter of boring:- 100 mm Inclination:- Vertical	Date started. 27 - 11-88 Date completed. 27 - 11-88 Water level . 1.60 m from G.L. 29-11-88

reduced elevation	depth in m	thickness in m	strata encountered	standard penetration tests blows/30cm (10 20 30 40 50 60 70 80 90)	remarks (S.P.T. soil samples, vane shear test lbs/sq in.)
1					
2	2.45	2.45	Reddish stiff clay with little silt and sand.	15, 16	1.45, 2.45
3					3.45
4					
5				20	4.45
6				21	5.45
7					6.45
8				22	7.45
9					8.45
10			Reddish very stiff clay with silt trace sand.	25	9.45
11	11.45	9.00		27, 27	10.45, 11.45
12					
13				32	12.45
14				34	13.45
15	15.45	4.00	Reddish very stiff to hard clay with silt and sand.	37, 38	14.45, 15.45

drn:- disturbed sample..... undisturbed sample.....
checked:- date:- 30.11.88 scale:- 1:100 plan no. 32/B/1

SOILTREAT EQUIPMENT & ENGINEERING LTD.

GRADATION CURVE



COARSE GRAVEL	FINE GRAVEL	C. SAND	MEDIUM SAND	FINE SAND	FINE SILT	CLAY +
GRAVEL			COARSE SAND	MEDIUM SAND / FINE SAND	FINE SILT	CLAY + +

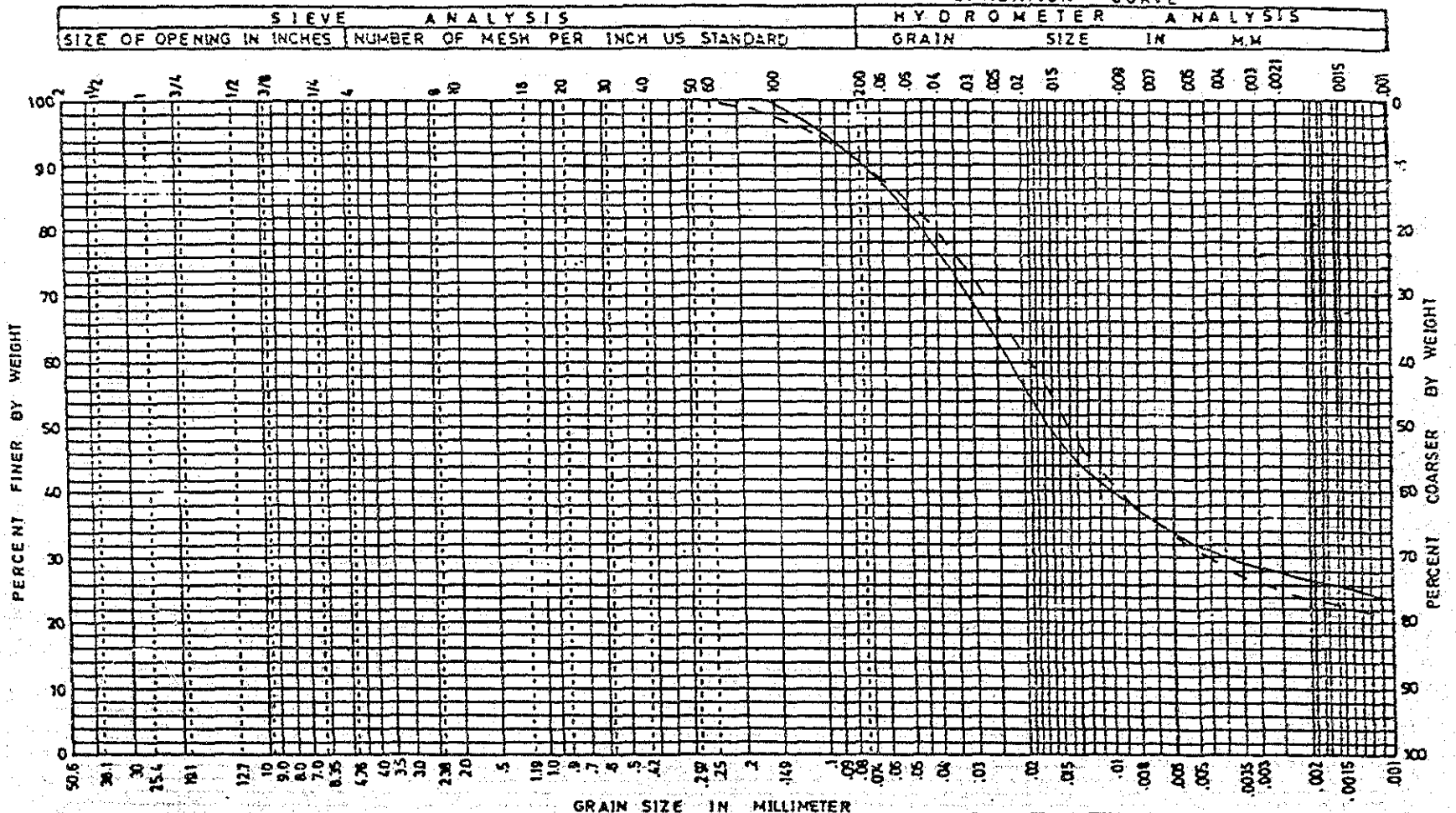
LOCATION	SAMPLE NO.	BOPING	DEPTH	LEGEND	CLASSIFICATION	Bould°/.	Gravel°/.	Sand°/.	Silt °/.	Clay°/.	Remarks
	D -2	1	2to2.45	———	Silt with clay trace fine sand			3	56	41	
	D-4	1	4to4.45	- - - -	"			4	59	37	

+ Unified soil classification

+ + M.I.T. soil classification

SOILTREAT EQUIPMENT & ENGINEERING LTD.

GRADATION CURVE



COARSE GRAVEL	FINE GRAVEL	C. SAND	MEDIUM SAND	FINE SAND	FINE SILT	CLAY +
GRAVEL			COARSE SAND	MEDIUM SAND / FINE SAND	FINE SILT	CLAY + +

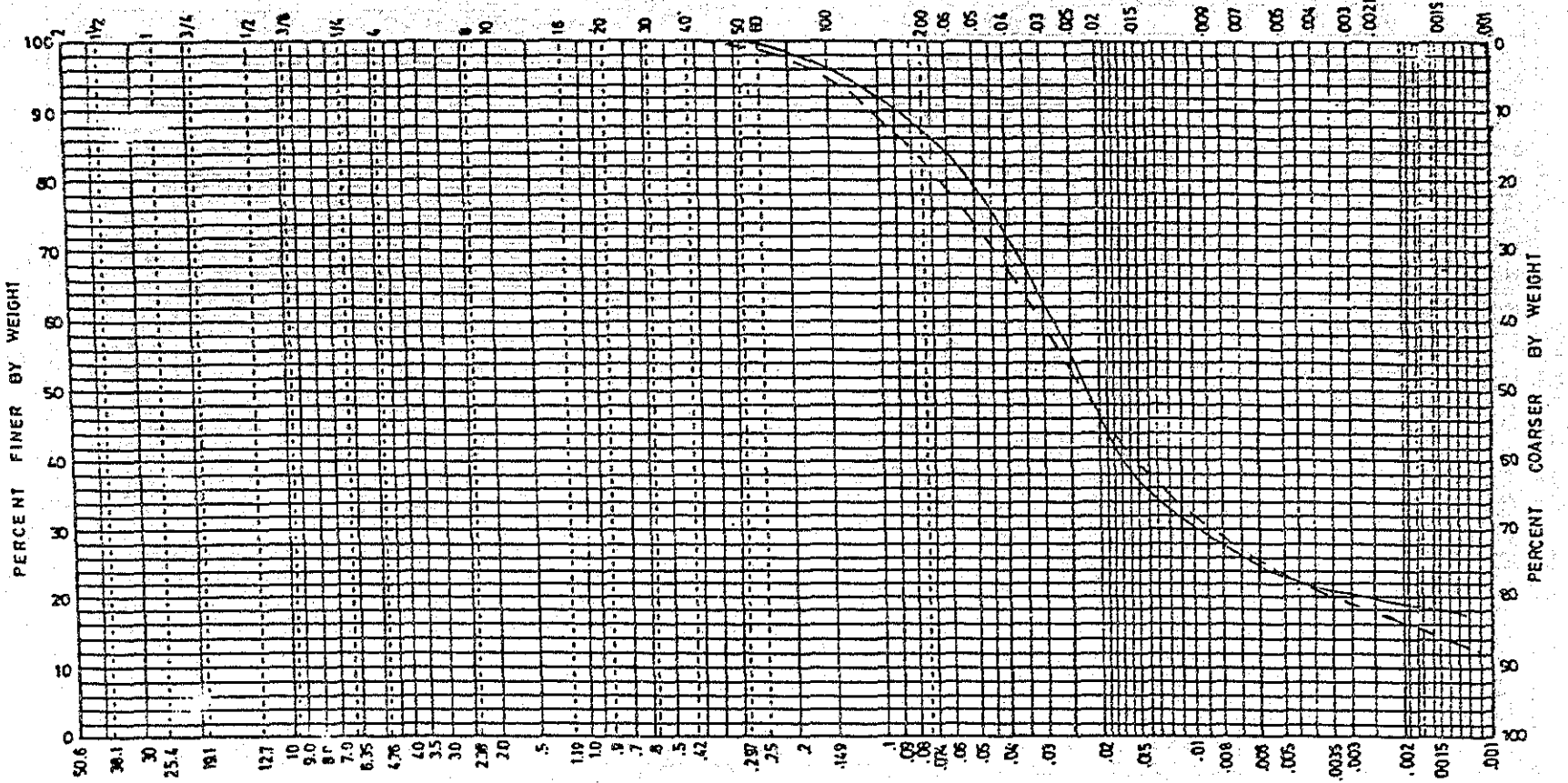
LOCATION	SAMPLE NO.	BORING	DEPTH	LEGEND	CLASSIFICATION	Bould°/.	Gravel°/.	Sand°/.	Silt °/.	Clay°/.	Remarks
	D- 5	1	5to5.45	———	Silt with some clay trace fine sand			10	63	27	
	D -7	1	7to7.45	- - - -	Silt with little clay trace sand			9	67	24	

+ Unified soil classification
+ + M.I.T. soil classification

SOILTREAT EQUIPMENT & ENGINEERING LTD.

GRADATION CURVE

SIEVE ANALYSIS		HYDROMETER ANALYSIS
SIZE OF OPENING IN INCHES	NUMBER OF MESH PER INCH US STANDARD	GRAIN SIZE IN M.M



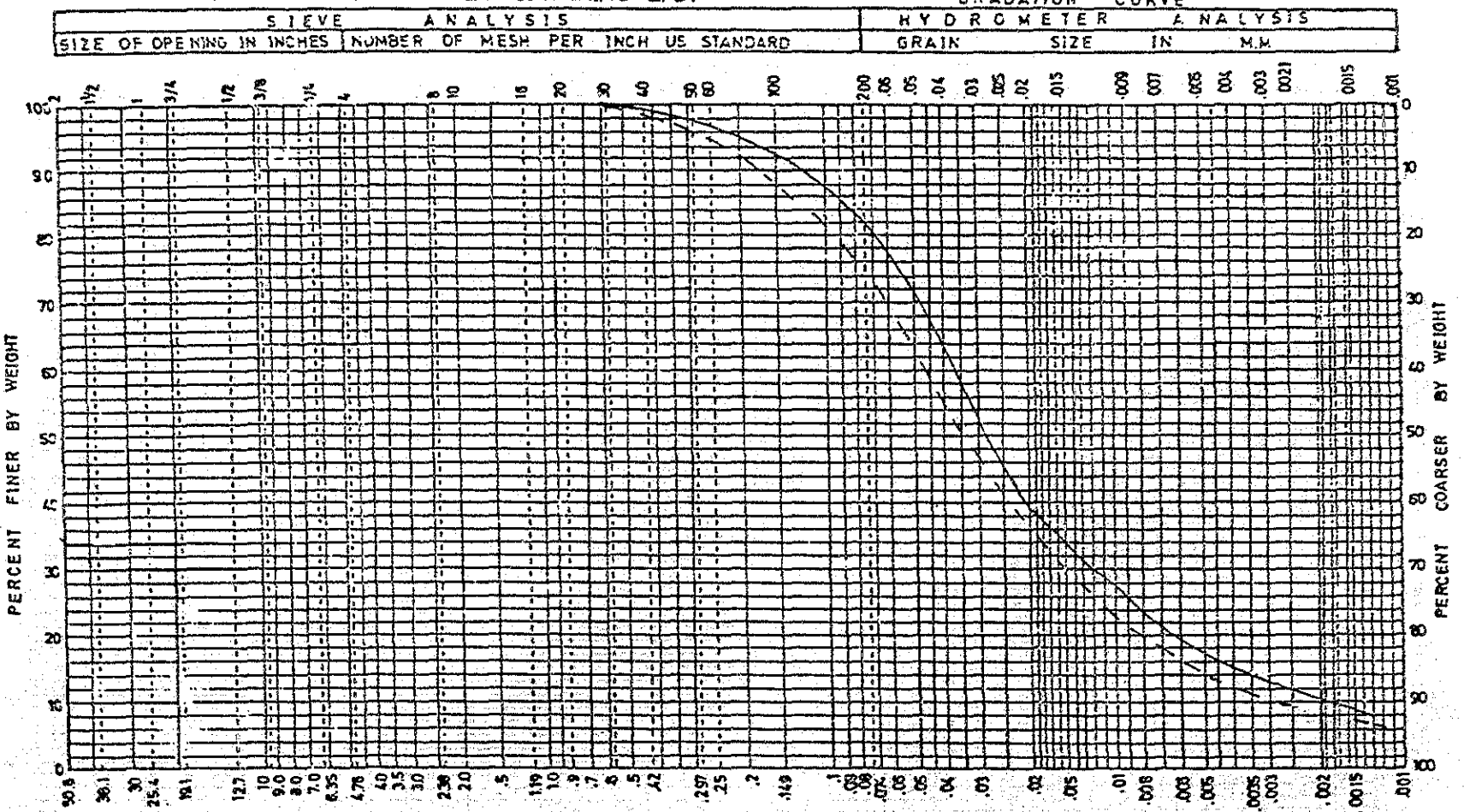
COARSE GRAVEL	FINE GRAVEL	C. SAND	MEDIUM SAND	FINE SAND	FINE SILT	CLAY +
GRAVEL			COARSE SAND	MEDIUM SAND / FINE SAND	FINE SILT	CLAY + +

LOCATION	SAMPLE NO.	BORING	DEPTH	LEGEND	CLASSIFICATION	Bould°/.	Gravel°/.	Sand°/.	Silt °/.	Clay°/.	Remarks
	D - 9	1	9to9.45	———	Silt with little clay and sand			13	68	19	
	D - 10	1	10to10.45	- - - - -	"			17	67	16	

+ Unified soil classification
+ + M.I.T. soil classification

SOILTREAT EQUIPMENT & ENGINEERING LTD.

GRADATION CURVE



COARSE GRAVEL	FINE GRAVEL	C. SAND	MEDIUM SAND	FINE SAND	FINE SILT	CLAY +
GRAVEL			COARSE SAND	MEDIUM SAND	FINE SILT	CLAY ++

LOCATION	SAMPLE NO.	BORING	DEPTH	LEGEND	CLASSIFICATION	Bould°/.	Grave°/.	Sand°/.	Silt °/.	Clay°/.	Remarks
	D-12	1	12to12.5	———	Silt with little sand and clay			18	71	11	
	D-15	1	15to15.5	- - - -	Silt with some sand trace clay			25	67	8	

+ Unified soil classification

++ M.I.T. soil classification

Soil Mechanics & Foundation Engineering Division
Housing & Building Research Institute
Darus-Salam, Mirpur, Dhaka.

TRIAXIAL SHEAR TEST

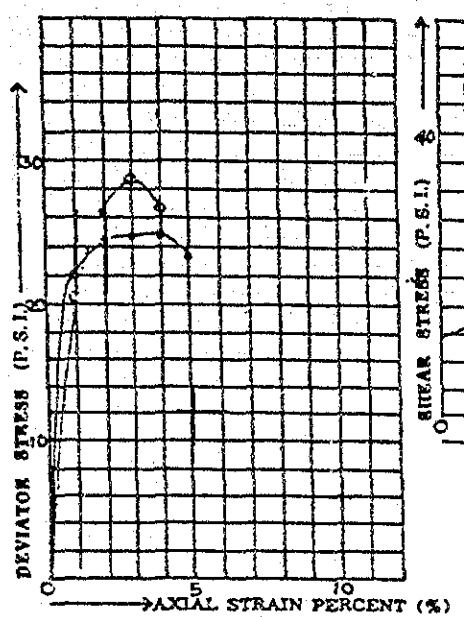
TYPE OF TEST: sample - UDS

HOLE NO: 1 | DEPTH: 3·00 m TO 3·45 m

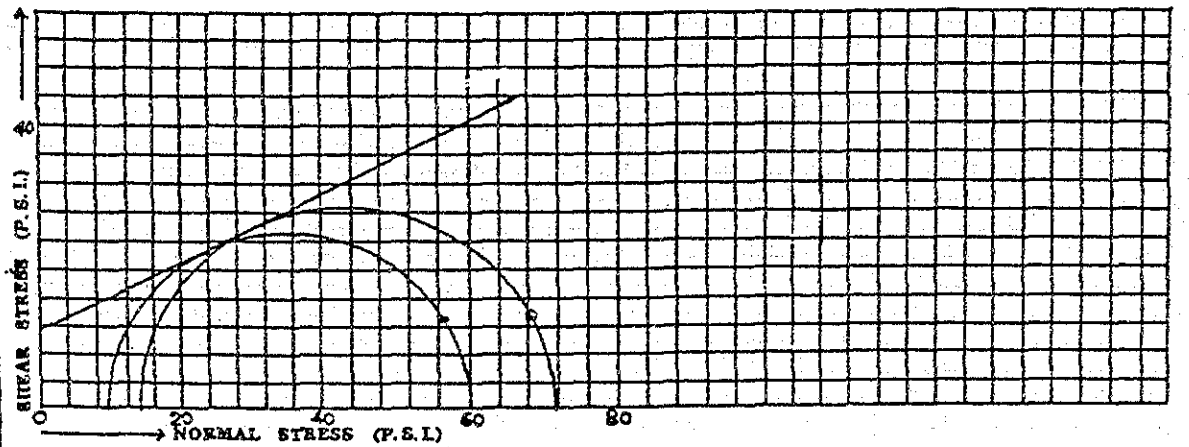
SOURCE: SOILTREAT, EQUIPMENT & ENGINEERING LTD.

SITE: SAVAR

STRESS-STRAIN DIAGRAM



MOHR'S STRESS DIAGRAM



1. COHESION C (Kg/Cm^2): 0·79 Kg/cm²
2. ANGLE OF INTERNAL FRICTION ϕ (degree): 26·41°

Tested By: | Officer-In-Charge | S.R.O/S.R.E. | P.R.O. | Director

Soil Mechanics & Foundation Engineering Division
Housing & Building Research Institute
Darus-Salam, Mirpur, Dhaka.

TRIAXIAL SHEAR TEST

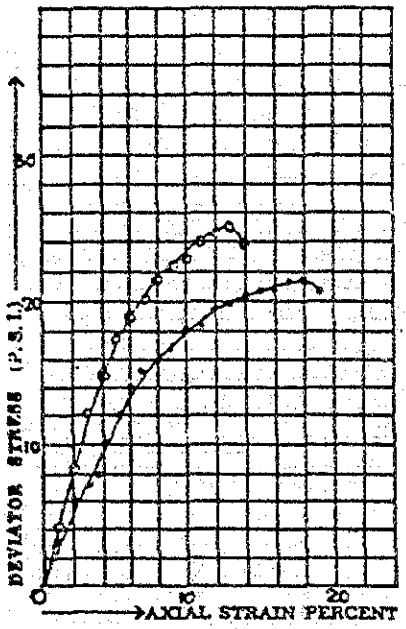
TYPE OF TEST: Sample - UD 2

HOLE NO: 1 | DEPTH: 6·00m TO 6·45m.

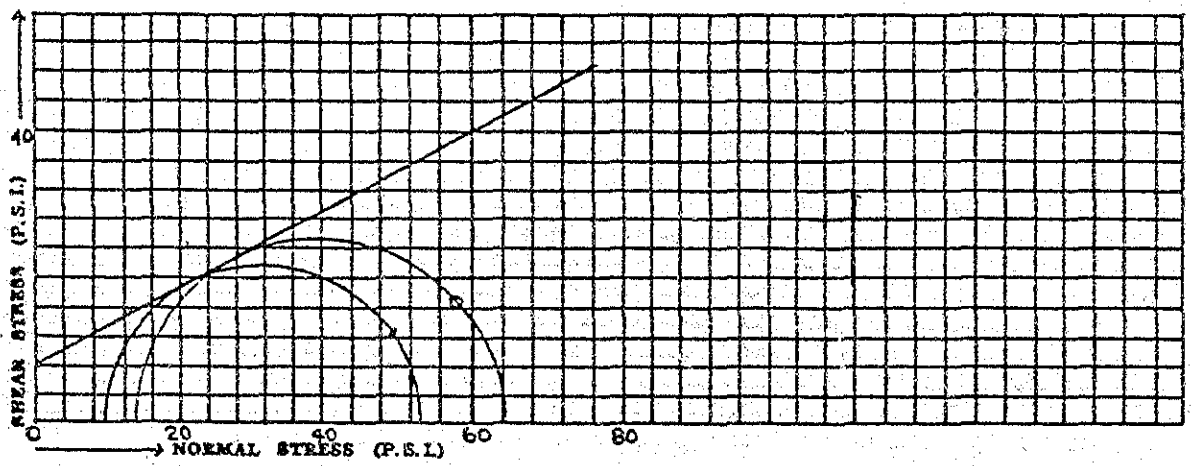
SOURCE: SOIL TREAT, EQUIPMENT & ENGINEERING LTD.

SITE: SAVAR

STRESS-STRAIN DIAGRAM



MOHR'S STRESS DIAGRAM



1. COHESION C (Kg/Cm^2): 0·56 kg/cm^2
2. ANGLE OF INTERNAL FRICTION ϕ (degree): 28°07°

Tested By: | Officer-In-Charge | S.R.O/S.R.E. | P.R.O. | Director

RIVER RESEARCH INSTITUTE, BWDB.
TRIAXIAL SHEAR TEST

SITE Savar BORING 1 SAMPLE U0-3 DEPTH 8.0m to 8.45m

SHEAR TEST _____ LAB NO. _____ DATE 3.12.88 SAMPLE DESCRIPTION Clay, trace fine Sand

APPARATUS Maruto INITIAL MOIST. W_1 27.56, 27.92 FINAL MOIST. W_F 27.56, 27.92

SAMPLE SIZE 7.0cm Long x 3.5cm dia TYPE TEST Unconsolidated Undrained

σ_1 KN/m²	σ_3 KN/m²
357.55	49.15
495.65	98.30
772.40	196.60

COEFFICIENT OF FRICTION _____

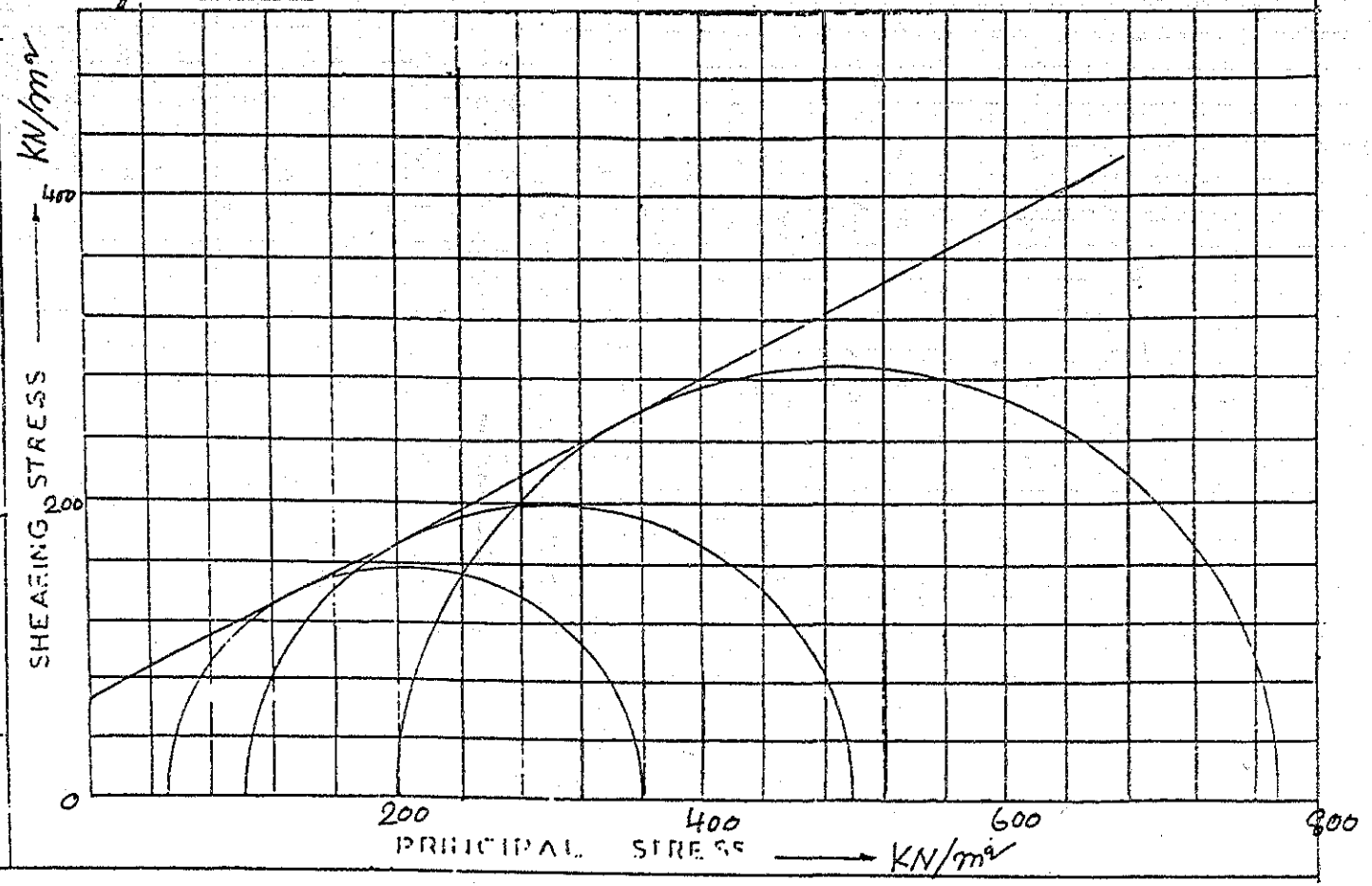
COHESION 67 KN/m²

SHEARING ANGLE 28°

REMARKS

SIGNATURE

Traced by : Feroza



SOILTREAT, EQUIPMENT & ENGG LTD.

SOIL MECNANICS MATERIAL TESTING LABORATORY

DHAKA

SUMMARY OF LABORATORY TEST RESULTS

Bore hole No.											
Sample No.		D-2	D-4	D-5	D-7	D-9	D-10	D-12	D-15		
Depth in m		2.0 to 2.45	4.0 to 4.45	5.0 to 5.45	7.0 to 7.45	9.0 to 9.45	10.0 to 10.45	12.0 to 12.45	15.0 to 15.45		
Moisture content (Natural) %		23.93			27.78		28.63				
Specific gravity			2.701	2.693		2.670	2.677	2.661	2.673		
Atterberg limits	Liquid limit, LW %		44	35	51						
	Plastic limit, PW %		28.35	24.28	25.83						
Density	Wet (gm/cm3)	1.74			1.74	1.77					
	Dry (gm/cm3)	1.40			1.38	1.37					
Grain size analysis	Gravel (%)										
	Sand (%)	3	4	10	9	13	17	18	25		
	Silt (%)	56	59	63	67	68	67	71	67		
	Clay (%)	41	37	27	24	19	16	11	8		
Triaxial shear test	c (kg/cm2)										
	φ (Deg)										
Unconfined compression tests	Strain at failure (%)										
	Stress undist, (lbs/sq.inch)										
	Stress remould. (lbs/sq.inch)										
	Sensitivity										

SOILTREAT, EQUIPMENT & ENGG LTD.
SOIL MECHANICS MATERIAL TESTING LABORATORY
DHAKA

SUMMARY OF LABORATORY TEST RESULTS

Bore hole No.											
Sample No.		UD - 1	UD - 2	UD - 3							
Depth in m		3.0 to 3.45	6.0 to 6.45	8.0 to 8.45							
Moisture content (Natural) %											
Specific gravity											
Atterberg limits	Liquid limit, LW %										
	Plastic limit, PW %										
Density	Wet (gm/cm3)										
	Dry (gm/cm3)										
Grain size analysis	Gravel (%)										
	Sand (%)										
	Silt (%)										
	Clay (%)										
Triaxial shear test	c (kg/cm2)	0.79	0.56	0.68							
	ϕ (Deg)	26.41	28.07	28.0							
Unconfined compression tests	Strain at failure (%)										
	Stress undist.(lbs/sq.inch)										
	Stress remould.(lbs/sq.inch)										
	Sensitivity										

NO. 11 Documents Obtained

(1) "1987 Statistical Yearbook of Bangladesh"
Bangladesh Bureau of Statistics, Statistics Division,
Ministry of Planning, July 1988

(2) "PROJECT PROFORMA for REPLACEMENT of 100kW.
MW. TRANSMITTER RADIO BANGLADESH (NBA), SAVAR,
DHAKA by 500kW (2×250) MW TRANSMITTER

(3) NBA Budget Document
Budget Expenditures at Savar Transmitting Station (HPT-1)

(4) Organization Chart, NBA

(5) Radio Programme Table (Bengali)

(6) "REPORT of the Martial Law Committee on Organizational Set Up"
Ministry of Information

(7) "ELECTRICITY TARIFF, July 1988"
Bangladesh Power Development Board

(8) PROJECT FOR THE FOURTH FIVE YEAR PLAN
(1990 - 1995)

(9) Bangladesh Calling (October - December, 1988)

(10) Field Strength Measurement DATA
(1983 - 1986)

(11) Medium Wave Coverage of Radio Bangladesh

(12) "Instruction Manual for 500ft Mast"

(13) Existing Building Lay - out Plan

(14) "Monthly STATISTICAL BULLETIN of Bangladesh
July, 1988"
Bangladesh Bureau of Statistics

(15) Letter from NBA to IFRB

(16) "Meteorological Data"
Meteorological Department

(17) "MEET BANGLADESH"
Department of Films and Publications, Ministry of Information

(18) SMALL AREA ATLAS OF BANGLADESH. Sep. 1985

(19) Landness in Bangladesh

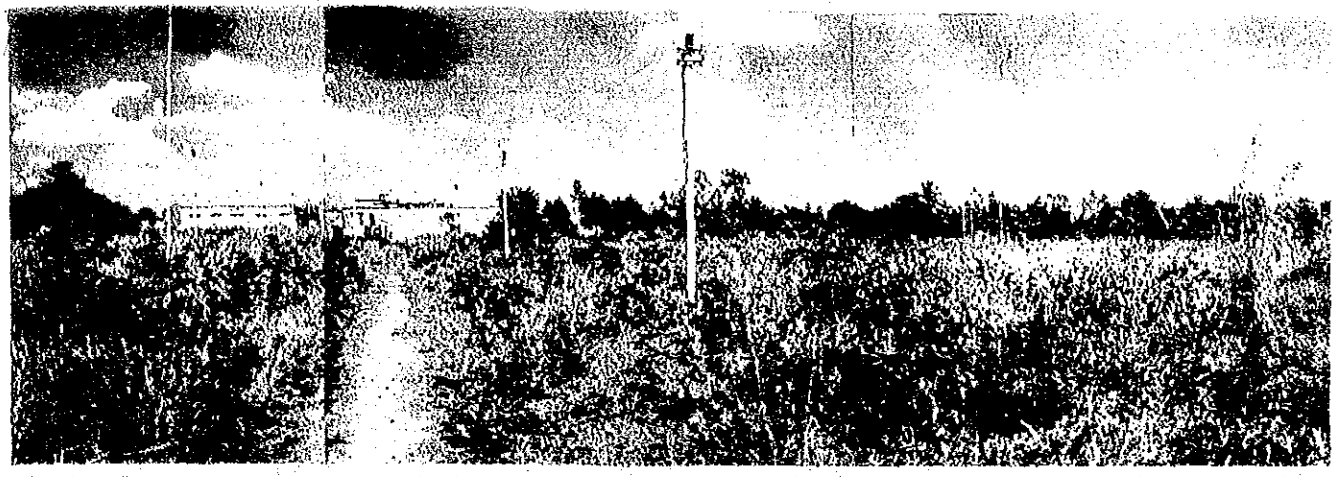
(20) State and Development

(21) ADMINISTRATIVE UNIT MAP

(22) DHAKA GUIDE MAP

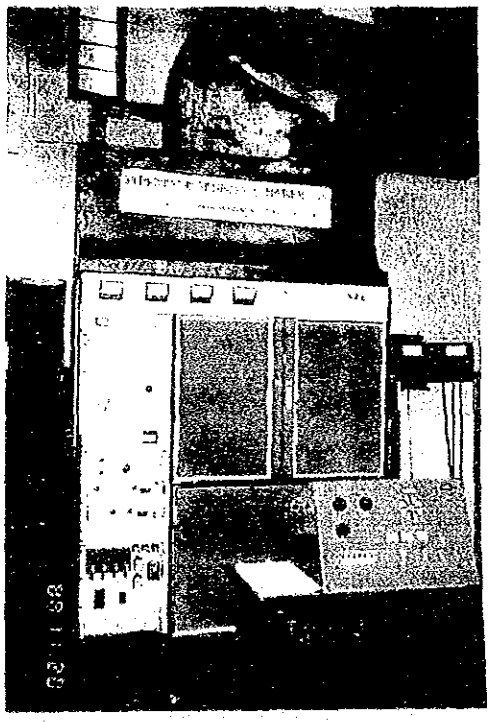
(23) Bangladesh Map (1/1000000)

NO.12 Photographs of Savar Transmitting Station

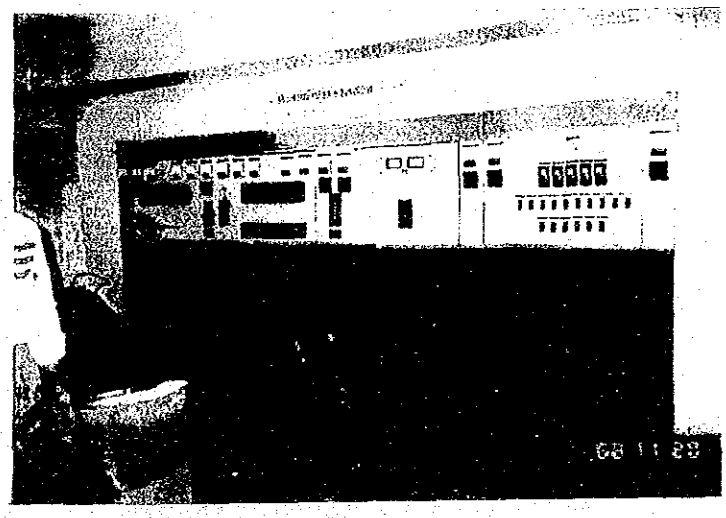


Premises of Savar Transmitting Station

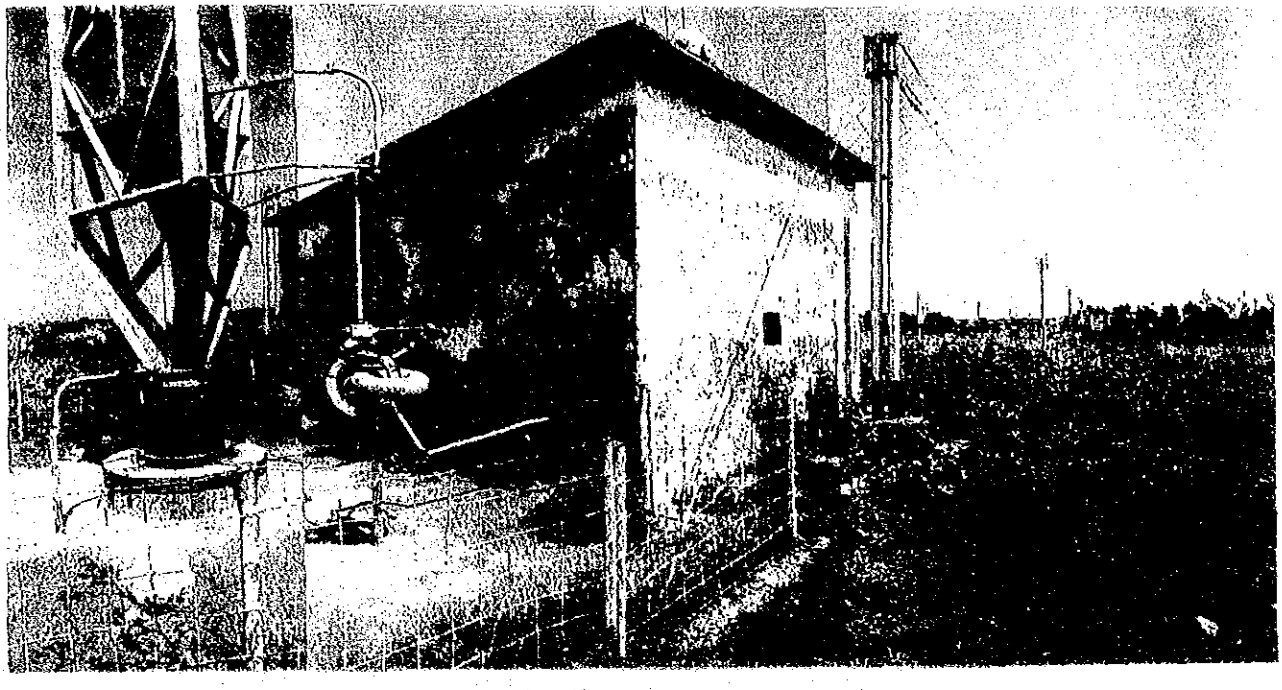
Medium Wave 100kW Transmitter (819kHz)



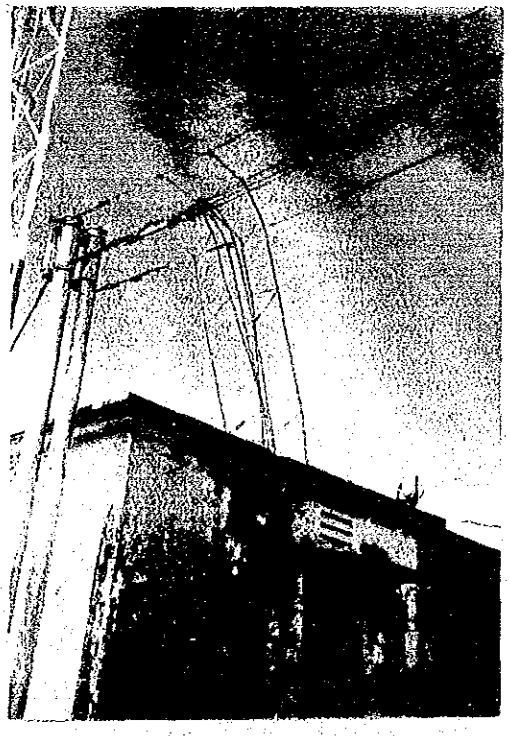
Medium Wave 10kW Transmitter (1170kHz)



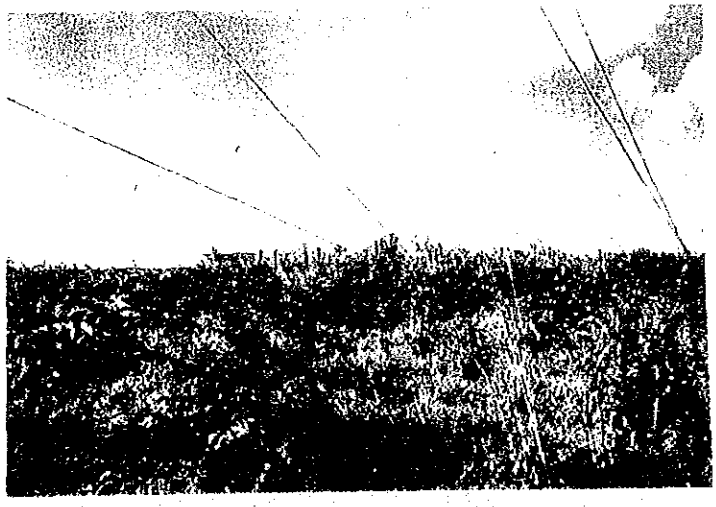
Short Wave 100kW Transmitter



Antenna Tuning House



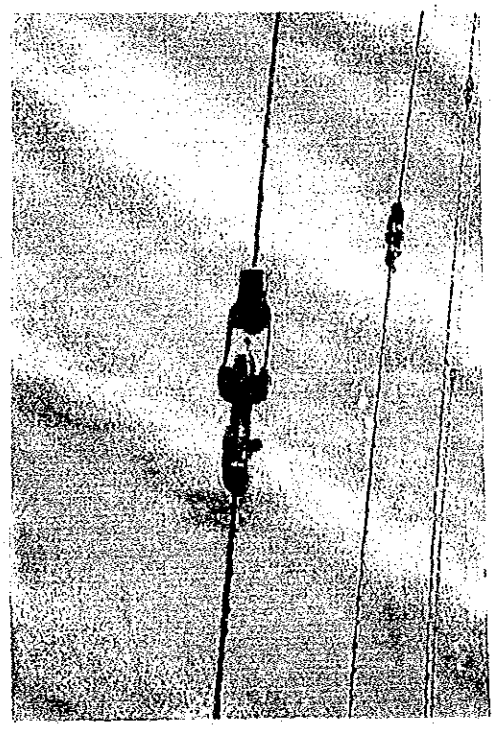
Feeder Inlet Port



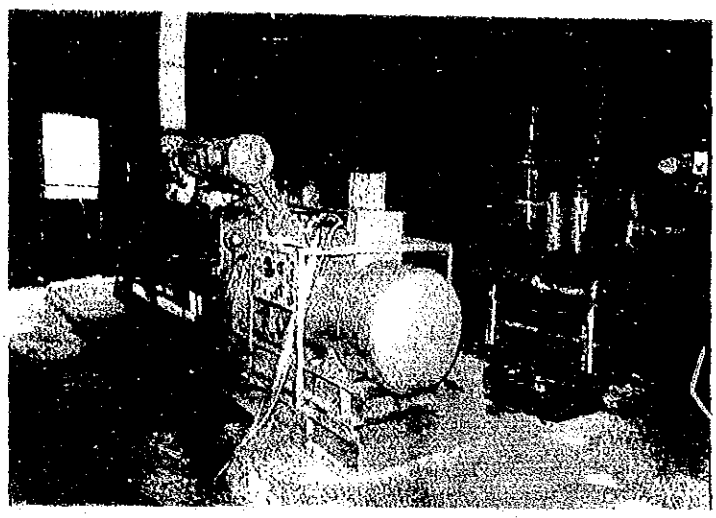
Short Wave Antenna

Transmitting Antenna Tower

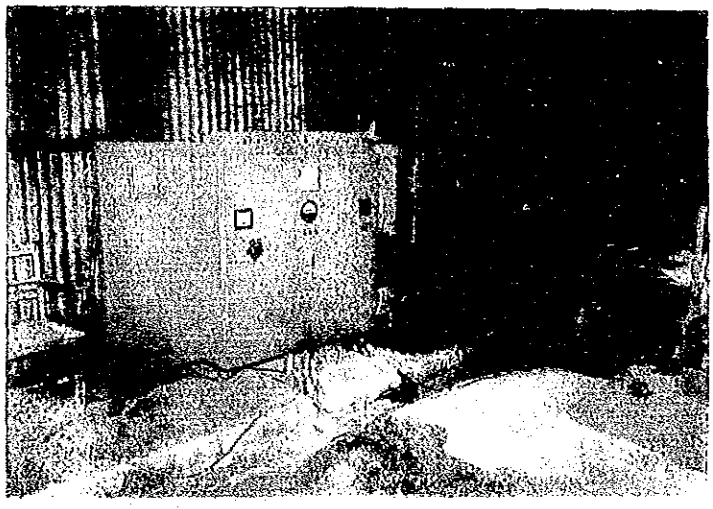
Feeder



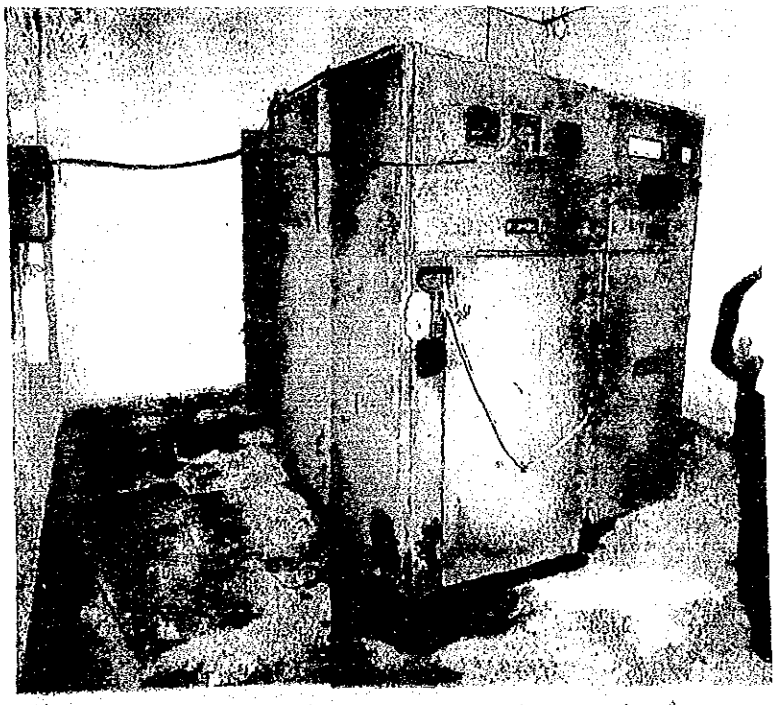
Guy Insulator



Engine Generator



Engine Generator Control Board



Receiving Power Switch Board