A-5 DATA OF DRILL HOLE DEFORMATION TEST

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (1 - 41)

Drill Hole No. : DHU -1	Test Depth : 46.2 m	Water Table Depth : 35.6 m	Drill Hole Diameter : 76mm
Geology : coarse-grained sandstone			Rock Classification : 4 , 3-4, 2
Loading Pattern : - 30 - 10 - 60 - 10 - 100- 10 - 100- - -			
Test Date : Sep. 22. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 15:00	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			10.0	30.0	60.0	100.0	100<	10.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.20	0.24	0.29	0.36	—	0.31	0.37
Calibration by Pipe (mm)	Befor. Test T_B 9:30	r_{BX76} φ76mm	0.00	0.01	0.01	0.00	—	0.00	0.00
		r_{BX80} φ80mm	1.91	1.92	1.93	1.92	—	1.91	1.92
	After Test T_A 16:30	r_{AX76} φ76mm	0.02	0.02	0.02	0.00	—	-0.01	-0.01
		r_{AX80} φ80mm	1.91	1.91	1.90	1.86	—	1.91	1.86
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.01	0.00	0.00	-0.01	—	-0.01	-0.01
	After Test	r^*_{AX}	0.01	0.01	0.00	-0.03	—	0.00	-0.03
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.01	0.00	0.00	-0.03	—	0.00	-0.03

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		10.0	20.0	50.0	90.0	90<	0.0	90.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.19	0.24	0.29	0.39	—	0.31	0.40

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	23,000	20 ~ 90	50,000	0 ~ 90

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1+\nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (2 - 41)

Drill Hole No. : DHU -1	Test Depth : 50.45m	Water Table Depth : 35.6 m	Drill Hole Diameter : 76mm
Geology : clayey fine-grained sandstone			Rock Classification : 2 , 3 ,2-3
Loading Pattern : - 35 - 10 - 65 - 10 - 100- 10 - 100- - -			
Test Date : Sep. 22. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 13:30	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			10.0	35 .0	65 .0	100.0	100<	10.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.71	1.78	1.84	1.87	—	1.87	1.90
Calibration by Pipe (mm)	Befor. Test T_B 9:30	r_{BX76} φ76mm	0.00	0.01	0.01	0.00	—	0.00	0.00
		r_{BX80} φ80mm	1.91	1.92	1.93	1.92	—	1.91	1.92
	After Test T_A 16:30	r_{AX76} φ76mm	0.02	0.03	0.01	0.00	—	0.02	0.00
		r_{AX80} φ80mm	1.91	1.91	1.89	1.86	—	1.91	1.86
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.08	-0.07	-0.06	-0.07	—	-0.08	-0.07
	After Test	r^*_{AX}	-0.07	-0.08	-0.10	-0.13	—	-0.08	-0.13
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.07	-0.08	-0.08	-0.10	—	-0.08	-0.10

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		10.0	25.0	55.0	90.0	90<	0.0	90.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.78	1.85	1.92	1.97	—	1.95	2.00

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	4.0	28,000	25 ~ 90	94,000	0 ~ 90

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (3 − 41)

Drill Hole No. : DHU −1	Test Depth : 66.5 m	Water Table Depth : 35.6 m	Drill Hole Diameter : 76mm
Geology : siltstone (sheared)			Rock Classification :2-3, 4 , 5
Loading Pattern : − 35 − 10 − 60 − 10 − 100− 10 − 100− − −			
Test Date : Sep. 9. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
			initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
Measured Test Data	Time T_T 11:20	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			10.5	35.0	60.0	100.0	100<	10.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.50	1.57	1.66	1.73	—	1.70	1.78
Calibration by Pipe (mm)	Befor. Test T_B 9:30	r_{BX76} φ76mm	0.00	0.01	0.01	0.00	—	0.00	0.00
		r_{BX80} φ80mm	1.91	1.92	1.93	1.92	—	1.91	1.92
	After Test T_A 16:30	r_{AX76} φ76mm	0.02	0.02	0.02	0.00	—	0.02	0.00
		r_{AX80} φ80mm	1.91	1.91	1.90	1.86	—	1.91	1.86
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.07	-0.06	-0.06	-0.07	—	-0.08	-0.07
	After Test	r^*_{AX}	-0.06	-0.07	-0.08	-0.12	—	-0.07	-0.12
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.07	-0.06	-0.07	-0.08	—	-0.08	-0.09

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		10.0	25.0	50.0	90.0	90<	0.0	90.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.57	1.63	1.73	1.81	—	1.78	1.87

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	4.0	19,000	25 ～ 90	52,000	0 ～ 90

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad$ $Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad$ $D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (4 − 41)

Drill Hole No. : DHU −1	Test Depth : 71.7 m	Water Table Depth : 33.8 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 ,3-4, 2-3
Loading Pattern : − 35 − 10 − 70 − 10 − 100− 10 − 100− − −			
Test Date : Sep. 20. 1990	Operator : TEERACHAI N.	Remarks: No calibration after test (cable trouble)	

			Virgin Loading					Repeated Loading	
			initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
Measured Test Data	T_T 13:40	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			18.0	35.0	70.0	100.0	100<	18.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.51	1.55	1.64	1.73	—	1.73	1.79
Calibration by Pipe (mm)	Befor. Test T_B 10:15	r_{BX76} φ76mm r_{BX80} φ80mm	0.02 2.01	0.03 2.01	0.03 2.004	0.03 2.00	— —	0.02 2.01	0.03 2.00
	After Test T_A	r_{AX76} φ76mm r_{AX80} φ80mm	— —	— —	— —	— —	— —	— —	— —
Calibration Value (mm)	Befor. Test After Test	r^*_{BX} r^*_{AX}	0.01 —	0.01 —	0.01 —	0.00 —	— —	0.01 —	0.00 —
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.01	0.01	0.01	0.00	—	0.01	0.00

		P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
Adjusted Test Data	Pressure P_x (kgf/cm²)	18.0	17.0	52.0	82.0	82<	0.0	82.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.50	1.54	1.63	1.73	—	1.72	1.79

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	4.0	18,000	22 ～ 82	61,000	0 ～ 82

$r^*_{BX \text{ or } AX} = \{ r_{BX78 \text{ or } AX78} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad$ $Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad$ $D,\ Es = (1+\nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (5 − 41)

Drill Hole No. : DHU −1	Test Depth : 81.0 m	Water Table Depth : 33.8 m	Drill Hole Diameter : 76mm
Geology : siltstone (sheared)			Rock Classification : 1 , 4 , 3
Loading Pattern : − 35 − 15 − 70 − 15 − 100− 15 − 100− − −			
Test Date : Sep. 20. 1990	Operator : TEERACHAI N.	Remarks: No calibration after test (cable trouble)	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 13:20	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			15.0	25.0	70.0	100.0	100<	15.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.03	1.15	1.26	1.44	—	1.47	1.56
Calibration by Pipe (mm)	Befor. Test T_B 10:15	r_{BX76} φ76mm	0.01	0.03	0.03	0.03	—	0.01	0.03
		r_{BX80} φ80mm	2.02	2.01	2.00	2.00	—	2.02	2.00
	After Test T_A	r_{AX76} φ76mm	—	—	—	—	—	—	—
		r_{AX80} φ80mm	—	—	—	—	—	—	—
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.02	0.02	0.01	0.01	—	0.02	0.01
	After Test	r^*_{AX}	—	—	—	—	—	—	—
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.02	0.02	0.01	0.01	—	0.02	0.01

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		15.0	20.0	55.0	85.0	85<	0.0	85.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.01	1.13	1.25	1.43	—	1.45	1.55

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	11,000	20 ～ 85	43,000	0 ～ 85

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (6 − 41)

Drill Hole No. : DHU −4	Test Depth : 8.7 m	Water Table Depth : 36.25m	Drill Hole Diameter : 76mm
Geology : coarse-grained sandstone			Rock Classification : 3 , 2 , 2
Loading Pattern : − 20 − 7.5− 40 − 7.5− 60 − 7.5− 60 − − −			
Test Date : Aug. 4.1990	Operator : TEERACHAI N.	Remarks: ** Rubber tube did not contact pipe.	

			Virgin Loading					Repeated Loading	
			initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
Measured Test Data	T_T 13:50	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			5.0	20.0	40.0	60.0	60<	10.0	60.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.05	0.10	0.11	0.11	—	0.10	0.11
Calibration by Pipe (mm)	Befor. Test T_B 10:00	r_{BX76} φ76mm	0.01	0.03	0.03	0.03	—	0.03	0.03
		r_{BX80} φ80mm	— **	1.98	2.00	1.99	—	1.96	1.99
	After Test T_A 14:50	r_{AX76} φ76mm	0.11	0.13	0.12	0.10	—	0.12	0.10
		r_{AX80} φ80mm	— **	2.05	2.03	2.01	—	2.05	2.01
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.01	0.03	0.03	0.03	—	0.03	0.03
	After Test	r^*_{AX}	0.11	0.13	0.12	0.10	—	0.12	0.10
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			(0.09)	0.11	0.10	0.09	—	0.10	0.09

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		5.0	15.0	35.0	55.0	55<	5.0	55.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		(-0.04)	-0.01	0.01	0.02	—	0.00	0.02

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	60,000	15 ～ 55	100,000	5 ～ 55

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (7 − 41)

Drill Hole No. : DHU −4	Test Depth : 23.0 m	Water Table Depth : 24.6 m	Drill Hole Diameter : 76mm
Geology : coarse-grained sandstone			Rock Classification : 2 , 1-2, 1
Loading Pattern : − 20 − 7.5− 40 − 7.5− 60 − 7.5− 60 − − −			
Test Date : Aug. 3.1990	Operator : TEBRACHAI N.	Remarks: * too fast pressuring at the Calib.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 16:10	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			5.0	20.0	40.0	60.0	60<	10.0	60.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.50	0.56	0.56	0.55	—	0.55	0.55
Calibration by Pipe (mm)	Befor. Test T_B 11:30	r_{BX76} φ76mm	0.00	0.04	0.04	0.04	—	0.02	0.04
		r_{BX80} φ80mm	(1.96)* 2.03	2.05	2.05	2.05	—	2.00	2.05
	After Test T_A 17:30	r_{AX76} φ76mm	0.26	0.29	0.30	0.29	—	0.28	0.29
		r_{AX80} φ80mm	2.08	2.25	2.26	2.27	—	2.23	2.27
Calibration Value (mm)	Befor. Test After Test	r^*_{BX} r^*_{AX}	-0.01 0.22	0.04 0.28	0.04 0.29	0.04 0.28	— —	0.01 0.27	0.04 0.28
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.17	0.23	0.23	0.23	—	0.21	0.23

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		5.0	15.0	35.0	55.0	55<	5.0	55.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		(0.33)	0.33	0.33	0.32	—	0.34	0.32

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	300,000<	15 ～ 55	300,000<	5 ～ 55

$$r^*_{BX\ or\ AX} = \{r_{BX76\ or\ AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80\ or\ AX80} - 2.0) \cdot \Delta r'_x\}/2$$

$$r^*_x = \{r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B)\} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1)/20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1+\nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (8 − 41)

Drill Hole No. : DHU −4	Test Depth : 24.4 m	Water Table Depth : 36.25m	Drill Hole Diameter : 76mm
Geology : coarse-grained sandstone with claystone layers and cracks			Rock Classification : 3 ,3-4, 3-4
Loading Pattern : − 20 − 7.5− 40 − 7.5− 60 − 7.5− 60 − 7.5− 60 −			
Test Date : Aug. 4.1990	Operator : TEERACHAI N.	Remarks: ** Rubber tube did not contact pipe	

	Time		Virgin Loading					Repeated Loading	
			initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
Measured Test Data	T_T 11:00	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			5.0	20.0	40.0	60.0	60<	10.0	60.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.11	0.26	0.38	0.46	—	0.44	0.52
Calibration by Pipe (mm)	Befor. Test T_B 10:00	r_{BX76} φ76mm	0.01	0.03	0.03	0.03	—	0.03	0.03
		r_{BX80} φ80mm	— **	1.98	2.00	1.99	—	1.96	1.99
	After Test T_A 14:50	r_{AX76} φ76mm	0.11	0.13	0.12	0.10	—	0.12	0.10
		r_{AX80} φ80mm	— **	2.05	2.03	2.01	—	2.05	2.01
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.01	0.02	0.02	0.02	—	0.01	0.02
	After Test	r^*_{AX}	0.11	0.12	0.10	0.08	—	0.10	0.08
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			(0.03)	0.04	0.04	0.03	—	0.03	0.03

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		5.0	15.0	35.0	55.0	55<	5.0	55.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		(0.08)	0.22	0.34	0.43	—	0.41	0.49

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	9,300	15 ～ 55	31,000	5 ～ 55

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (9 − 41)

Drill Hole No. : DHU −4	Test Depth : 34.3 m	Water Table Depth : 24.6 m	Drill Hole Diameter : 76mm
Geology : coarse-grained sandstone			Rock Classification : 3 , 2-3, 2
Loading Pattern : − 20 − 7.5− 40 − 7.5− 60 − 7.5− 60 − 7.5− 60 −			
Test Date : Aug. 3. 1990	Operator : TEERACHAI N.	Remarks: ** Rubber tube does not contact pipe.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 14:30	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			5.0	20.0	40.0	60.0	60<	10.0	60.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.21	0.28	0.33	0.34	—	0.35	0.35
Calibration by Pipe (mm)	Befor. Test T_B 11:30	r_{BX76} φ76mm	0.00	0.04	0.04	0.04	—	0.02	0.04
		r_{BX80} φ80mm	— **	2.03	2.05	2.05	—	2.00	2.05
	After Test T_A 17:30	r_{AX76} φ76mm	0.26	0.29	0.30	0.29	—	0.28	0.29
		r_{AX80} φ80mm	— **	2.25	2.26	2.27	—	2.23	2.27
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.00	0.04	0.04	0.04	—	0.02	0.04
	After Test	r^*_{AX}	0.26	0.28	0.30	0.29	—	0.27	0.29
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			(0.13)	0.16	0.17	0.17	—	0.15	0.17

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		5.0	15.0	35.0	55.0	55<	5.0	55.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		(0.08)	0.12	0.16	0.17	—	0.20	0.18

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	40,000	15 ～ 55	200,000	5 ～ 55

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (10 − 41)

Drill Hole No. : DHW −1	Test Depth : 82.0 m	Water Table Depth : 51.3 m	Drill Hole Diameter : 76mm
Geology : silty fine-grained sandstone			Rock Classification : 1 ,3-4, 2-3
Loading Pattern : − 25 − 10 − 50 − 10 − 60 − − − − −			
Test Date : Aug. 8. 1990	Operator : TEERACHAI N.	Remarks: pressure leak	

			Virgin Loading					Repeated Loading	
	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
Measured Test Data	T_T 15:10	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			10.0	25.0	50.0	60.0	60<	10.0	50.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.78	1.87	1.95	2.01	—	1.97	2.00
Calibration by Pipe (mm)	Befor. Test T_B 12:10	r_{BX76} φ76mm	0.06	0.08	0.09	0.09	—	0.06	0.09
		r_{BX80} φ80mm	1.97	1.99	1.99	1.99	—	1.97	1.99
	After Test T_A 16:10	r_{AX76} φ76mm	0.12	0.13	0.15	0.15	—	0.12	0.15
		r_{AX80} φ80mm	2.15	2.17	2.19	2.19	—	2.15	2.19
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.02	0.00	-0.01	-0.01	—	-0.03	-0.01
	After Test	r^*_{AX}	0.15	0.13	0.19	0.19	—	0.15	0.19
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.11	0.10	0.10	0.10	—	0.11	0.10

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		10.0	15.0	40.0	50.0	50<	0.0	40.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.67	1.77	1.85	1.91	—	1.86	1.90

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	4.0	13,000	15 ～ 50	50,000	0 ～ 40

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (11 − 41)

Drill Hole No. : DHW −1	Test Depth : 95.5 m	Water Table Depth : 51.3 m	Drill Hole Diameter : 76mm
Geology : alternation of fine-grained sandstone and siltstone			Rock Classification : 1 , 3 , 1
Loading Pattern : − 25 −12.5− 50 −12.5− 100−12.5− 100− − −			
Test Date : Aug. 10.1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 14:00	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			12.5	25.0	50.0	100.0	100<	12.5	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.42	0.47	0.50	0.55	—	0.52	0.57
Calibration by Pipe (mm)	Befor. Test T_B 9:30	r_{BX76} φ76mm	0.05	0.06	0.06	0.07	—	0.05	0.07
		r_{BX80} φ80mm	1.98	2.00	1.99	1.99	—	1.98	1.99
	After Test T_A 15:30	r_{AX76} φ76mm	0.10	0.12	0.11	0.11	—	0.10	0.11
		r_{AX80} φ80mm	2.04	2.05	2.05	2.05	—	2.04	2.05
Calibration Value (mm)	Befor. Test After Test	r^*_{BX}	0.04	0.05	0.04	0.05	—	0.03	0.05
		r^*_{AX}	0.09	0.10	0.10	0.09	—	0.08	0.09
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.08	0.09	0.09	0.08	—	0.07	0.08

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		12.5	12.5	37.5	87.5	87.5<	0.0	87.5
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.34	0.38	0.41	0.47	—	0.45	0.49

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	40,000	12.5~87.5	100,000	0 ~ 87.5

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (12 − 41)

Drill Hole No. : DHW −1	Test Depth : 113.0 m	Water Table Depth : 51.3 m	Drill Hole Diameter : 76mm
Geology : sandy siltstone			Rock Classification : 1 , 3 , 2
Loading Pattern : − 25 −12.5− 50 −12.5− 100−12.5− 100− − −			
Test Date : Aug. 10.1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
			initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
Measured Test Data	T_T 11:40	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			15.0	25.0	50.0	100.0	100<	15.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.64	1.71	1.84	1.90	—	1.86	1.93
Calibration by Pipe (mm)	Befor. Test T_B 9:30	r_{BX76} φ76mm	0.05	0.06	0.06	0.07	—	0.05	0.07
		r_{BX80} φ80mm	1.98	2.00	1.99	1.99	—	1.98	1.99
	After Test T_A 15:30	r_{AX76} φ76mm	0.10	0.12	0.11	0.11	—	0.10	0.11
		r_{AX80} φ80mm	2.04	2.05	2.05	2.05	—	2.04	2.05
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.01	0.01	0.00	-0.01	—	-0.02	-0.01
	After Test	r^*_{AX}	0.05	0.06	0.05	0.05	—	0.04	0.05
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.01	0.03	0.02	0.01	—	0.00	0.01

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		15.0	10.0	35.0	85.0	85<	0.0	85.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.63	1.68	1.82	1.89	—	1.86	1.92

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	4.0	17,000	10 ～ 85	70,000	0 ～ 85

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (13 − 41)

Drill Hole No. : DHW −1	Test Depth : 115.7 m	Water Table Depth : 51.3 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 , 3 , 1-2
Loading Pattern : − 25 −12.5− 50 −12.5− 100−12.5− 100− − −			
Test Date : Aug. 9.1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 15:40	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			12.5	25.0	50.0	100.0	100<	12.5	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.44	0.64	0.70	0.84	—	0.79	0.85
Calibration by Pipe (mm)	Befor. Test T_B 10:10	r_{BX76} φ76mm	0.02	0.02	0.03	0.03	—	0.02	0.03
		r_{BX80} φ80mm	1.95	1.95	1.94	1.94	—	1.95	1.94
	After Test T_A 17:20	r_{AX76} φ76mm	0.07	0.08	0.10	0.08	—	0.07	0.08
		r_{AX80} φ80mm	2.04	2.06	2.08	2.08	—	2.04	2.08
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.00	0.00	0.00	-0.01	—	-0.01	-0.01
	After Test	r^*_{AX}	0.06	0.07	0.09	0.08	—	0.06	0.08
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.05	0.05	0.07	0.06	—	0.04	0.06

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		12.5	12.5	37.5	87.5	87.5<	0.0	87.5
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.39	0.59	0.63	0.78	—	0.75	0.79

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	19,000	12.5～ 87.5	100,000	0 ～ 87.5

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1+\nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (14 − 41)

Drill Hole No. : DHW −1	Test Depth : 124.35m	Water Table Depth : 51.3 m	Drill Hole Diameter : 76mm
Geology : alternation of fine-grained sandstone and siltstone			Rock Classification : 1 , 3 ,2-3
Loading Pattern : − 25 −12.5− 50 −12.5− 100−12.5− 100− − −			
Test Date : Aug. 9.1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 13:40	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			12.5	25.0	50.0	100.0	100<	12.5	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			-0.08	-0.02	0.01	0.07	—	0.04	0.10
Calibration by Pipe (mm)	Befor. Test T_B 10:10	r_{BX76} φ76mm	0.02	0.02	0.03	0.03	—	0.02	0.03
		r_{BX80} φ80mm	1.95	1.95	1,.94	1.94	—	1.95	1.94
	After Test T_A 17:20	r_{AX76} φ76mm	0.07	0.08	0.10	0.08	—	0.07	0.08
		r_{AX80} φ80mm	2.04	2.06	2.08	2.08	—	2.04	2.08
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.02	0.02	0.03	0.03	—	0.02	0.03
	After Test	r^*_{AX}	0.07	0.08	0.10	0.08	—	0.07	0.08
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.04	0.05	0.06	0.05	—	0.04	0.05

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		12.5	12.5	37.5	87.5	87.5<	0.0	87.5
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		-0.12	-0.07	-0.05	0.02	—	0.00	0.05

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	40,000	12.5～ 87.5	90,000	0 ～ 87.5

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (15 − 41)

Drill Hole No. : DHW −1	Test Depth : 127.9 m	Water Table Depth : 51.3 m	Drill Hole Diameter : 76mm
Geology : coarse-grained sandstone			Rock Classification : 1 , 1-2, 1
Loading Pattern : − 25 −12.5− 50 −12.5− 100−12.5− 100− − −			
Test Date : Aug. 9. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
	11:50		15.0	25.0	50.0	100.0	100<	15.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.01	0.05	0.09	0.13	—	0.11	0.14
Calibration by Pipe (mm)	Befor. Test T_B 10:10	r_{BX76} φ76mm	0.02	0.02	0.03	0.03	—	0.02	0.03
		r_{BX80} φ80mm	1.95	1.95	1.94	1.94	—	1.95	1.94
	After Test T_A 17:20	r_{AX76} φ76mm	0.07	0.08	0.10	0.08	—	0.07	0.08
		r_{AX80} φ80mm	2.04	2.06	2.08	2.08	—	2.04	2.08
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.02	0.02	0.03	0.02	—	0.02	0.02
	After Test	r^*_{AX}	0.07	0.08	0.10	0.08	—	0.07	0.08
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.06	0.07	0.08	0.07	—	0.06	0.07

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		15.0	10.0	35.0	85.0	85<	0.0	85.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		-0.05	-0.02	0.01	0.06	—	0.05	0.07

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	50,000	10 ~ 85	200,000	0 ~ 85

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r'_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D, Es = (1+\nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (16 − 41)

Drill Hole No. : DHW −1	Test Depth : 133.5 m	Water Table Depth : 46.5 m	Drill Hole Diameter : 76mm
Geology : sandy siltstone			Rock Classification : 1 , 3 , 1
Loading Pattern : − 40 − 15 − 70 − 15 − 100− 15 − 100− − −			
Test Date : Aug. 21. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 14:00	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			18.0	40.0	70.0	100.0	100<	20.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.18	0.26	0.34	0.37	—	0.32	0.39
Calibration by Pipe (mm)	Befor. Test T_B 10:00	r_{BX76} φ76mm	-0.15	-0.14	-0.14	-0.14	—	-0.15	-0.14
		r_{BX80} φ80mm	1.79	1.80	1.80	1.80	—	1.79	1.80
	After Test T_A 15:15	r_{AX76} φ76mm	-0.12	-0.12	-0.12	-0.11	—	-0.12	-0.11
		r_{AX80} φ80mm	1.78	1.78	1.78	1.76	—	1.78	1.76
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.16	-0.15	-0.15	-0.15	—	-0.16	-0.15
	After Test	r^*_{AX}	-0.13	-0.13	-0.14	-0.13	—	-0.14	-0.14
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.14	-0.13	-0.14	-0.13	—	-0.14	-0.14

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		18.0	22.0	52.0	82.0	82<	2.0	82.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.32	0.39	0.48	0.50	—	0.46	0.53

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	23,000	22 ~ 82	57,000	2 ~ 82

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (17 − 41)

Drill Hole No. : DHW −1	Test Depth : 145.3 m	Water Table Depth : 46.5 m	Drill Hole Diameter : 76mm
Geology : coarse-grained sandstone with claystone patches			Rock Classification : 1 , 3-4, 2
Loading Pattern : − 40 −17.5− 70 −17.5− 100−17.5− 100− − −			
Test Date : Aug. 21, 1990	Operator : TEERACHAI N.	Remarks:	

		Time		Virgin Loading					Repeated Loading	
Measured Test Data		T_T 11:30	Pressure P'_x (kgf/cm²)	initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
				P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
				17.5	40.0	70.0	100.0	100<	17.5	100.0
			Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
				-0.05	0.19	0.32	0.40	—	0.25	0.42
Calibration by Pipe (mm)	Befor. Test T_B 10:00		r_{BX76} φ76mm	-0.15	-0.14	-0.14	-0.14	—	-0.15	-0.14
			r_{BX80} φ80mm	1.79	1.80	1.80	1.80	—	1.79	1.80
	After Test T_A 15:15		r_{AX76} φ76mm	-0.12	-0.12	-0.12	-0.11	—	-0.12	-0.11
			r_{AX80} φ80mm	1.78	1.78	1.78	1.76	—	1.78	1.76
Calibration Value (mm)	Befor. Test		r^*_{BX}	-0.15	-0.15	-0.15	-0.15	—	-0.16	-0.15
	After Test		r^*_{AX}	-0.12	-0.13	-0.14	-0.14	—	-0.13	-0.14
	At Test		r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
				-0.14	-0.14	-0.15	-0.14	—	-0.14	-0.14

		P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
Adjusted Test Data	Pressure P_x (kgf/cm²)	17.5	22.5	52.5	82.5	82.5<	0.0	82.5
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.09	0.33	0.47	0.54	—	0.39	0.56

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	14,000	22.5~82.5	26,000	0 ~82.5

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (18 - 41)

Drill Hole No. : DHW -1	Test Depth : 165.6 m	Water Table Depth : 54.2 m	Drill Hole Diameter : 76mm
Geology : coarse-grained sandstone with claystone patches			Rock Classification : 1 , 3-4, 2
Loading Pattern : - 25 -15.5- 50 -15.5- 100-15.5- 100- - -			
Test Date : Aug. 20. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time T_T 15:20	Pressure P'_x (kgf/cm²)	Initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
			P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			18.0	25.0	50.0	100.0	100<	25.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.00	0.10	0.12	0.16	—	0.16	0.18
Calibration by Pipe (mm)	Befor. Test T_B 11:40	r_{BX76} φ76mm	0.01	0.02	0.02	0.02	—	0.02	0.02
		r_{BX80} φ80mm	1.92	1.92	1.93	1.94	—	1.92	1.94
	After Test T_A 17:40	r_{AX76} φ76mm	-0.14	-0.14	-0.14	-0.12	—	-0.14	-0.12
		r_{AX80} φ80mm	1.88	1.89	1.91	1.88	—	1.89	1.88
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.01	0.02	0.01	0.01	—	0.01	0.01
	After Test	r^*_{AX}	-0.14	-0.14	-0.14	-0.12	—	-0.14	-0.12
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.08	-0.08	-0.08	-0.07	—	-0.08	-0.07

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		18.0	7.0	32.0	82.0	82<	7.0	82.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.08	0.18	0.20	0.23	—	0.24	0.25

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	70,000	7 ~ 82	400,000	7 ~ 82

$r^*_{BX \text{ or } AX} = \{ r_{BX78 \text{ or } AX78} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (19 − 41)			
Drill Hole No. : DHW −1	Test Depth : 187.0 m	Water Table Depth : 64.9 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 ,3-4,2-3
Loading Pattern : − 40 − 15 − 70 − 15 − 100− 15 − 100− − −			
Test Date : Aug. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 16:00	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			20.0	40.0	70.0	100.0	100<	20.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.64	1.83	2.04	2.13	—	1.85	2.12
Calibration by Pipe (mm)	Befor. Test T_B 10:45	r_{BX76} φ76mm	0.00	0.00	0.00	0.00	—	0.00	0.00
		r_{BX80} φ80mm	1.93	1.92	1.91	1.90	—	1.93	1.90
	After Test T_A 18:00	r_{AX76} φ76mm	0.01	0.00	0.00	0.00	—	0.00	0.00
		r_{AX80} φ80mm	1.99	2.01	2.05	2.08	—	1.99	2.08
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.06	-0.07	-0.09	-0.11	—	-0.06	-0.11
	After Test	r^*_{AX}	-0.01	0.01	0.05	0.09	—	0.00	0.08
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.02	-0.01	0.01	0.03	—	-0.02	0.03

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		20.0	20.0	50.0	80.0	80<	0.0	80.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.66	1.84	2.03	2.10	—	1.87	2.09

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	4.0	11,000	20 ～ 80	19,000	0 ～ 80

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (20 − 41)

Drill Hole No. : DHW −1	Test Depth : 193.0 m	Water Table Depth : 69.4 m	Drill Hole Diameter : 76mm
Geology : alternation of silty fine-grained sandstone and siltstone			Rock Classification : 1 , 3 , 3
Loading Pattern : − 40 − 15 − 70 − 15 − 100− 15 − 100− − −			
Test Date : Aug. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
			initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
Measured Test Data	T_T 14:25	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			15.0	40.0	70.0	100.0	100<	15.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.53	1.57	1.60	1.64	—	1.60	1.64
Calibration by Pipe (mm)	Befor. Test T_B 10:45	r_{BX76} φ76mm	0.00	0.00	0.00	0.00	—	0.00	0.00
		r_{BX80} φ80mm	1.93	1.92	1.914	1.90	—	1.93	1.90
	After Test T_A 18:00	r_{AX76} φ76mm	0.00	0.00	0.00	0.00	—	0.00	0.00
		r_{AX80} φ80mm	1.99	2.01	2.05	2.08	—	1.99	2.08
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.05	-0.06	-0.07	-0.08	—	-0.06	-0.08
	After Test	r^*_{AX}	-0.01	0.01	0.04	0.07	—	-0.01	0.07
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.03	-0.02	-0.01	-0.01	—	-0.03	-0.01

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		15.0	25.0	55.0	85.0	85<	0.0	85.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.56	1.59	1.61	1.65	—	1.63	1.65

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	4.0	61,000	25 ～ 85	200,000	0 ～ 85

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1+\nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (21 - 41)

Drill Hole No. : DHW -2	Test Depth : 130.5 m	Water Table Depth : 22.5 m	Drill Hole Diameter : 76mm
Geology : Sandy siltstone			Rock Classification : 1, 2-3, 1-2
Loading Pattern : - 40 - 17 - 70 - 17 - 100- 17 - 100- 17 - -			
Test Date : Dec. 3. 1990	Operator : Surapol	Remarks: incomplete calibration, * large error	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time T_T 13:49	Pressure P'_x (kgf/cm²)	initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
			P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			17	25	40	50	—	20	50
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.47	0.49	0.50	0.51	—	0.53	0.54
Calibration by Pipe (mm)	Befor. Test T_B 10:15	r_{BX76} φ76mm	0.01	0.01	0.01	0.01	—	0.01	0.01
		r_{BX80} φ80mm	1.96	1.97	1.97	1.97	—	1.97	1.97
	After Test T_A 15:42	r_{AX76} φ76mm	-0.29	-0.28	-0.28	-0.28	—	-0.28	-0.28
		r_{AX80} φ80mm	1.73	1.75	1.76	1.76	—	1.74	1.76
Calibration Value (mm)	Befor. Test	r^*_{BX}	0	0	0	0	—	0	0
	After Test	r^*_{AX}	-0.29	-0.27	-0.27	-0.27	—	-0.27	-0.27
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.19	-0.18	-0.18	-0.18	—	-0.18	-0.18

		P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
Adjusted Test Data	Pressure P_x (kgf/cm²)	17	8	23	33	—	3	33
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.66	0.67	0.68	0.69	—	0.71	0.72

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.87	63,000 *	8 ~ 33	150,000 *	3 ~ 33

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (22 - 41)

Drill Hole No. : DHW -2	Test Depth : 155.0 m	Water Table Depth : 17.2 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 ,3-4, 3
Loading Pattern : - 40 - 20 - 70 - 20 - 100- 20 - 100- 20 - -			
Test Date : Dec. 1. 1990	Operator : Surapol	Remarks: incomplete calibration, * large error	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time T_T 15:22	Pressure P'_x (kgf/cm²)	initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
			P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			20	40	70	100	—	20	100
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.32	1.40	1.44	1.47	—	1.42	1.47
Calibration by Pipe (mm)	Befor. Test T_B 10:06	r_{BX76} φ76mm	-0.02	0.00	0.00	0.00	—	-0.02	0.00
		r_{BX80} φ80mm	1.96	1.98	2.00	1.99	—	1.96	1.99
	After Test T_A 16:53	r_{AX76} φ76mm	-0.47	-0.43	-0.40	-0.35	—	-0.47	-0.35
		r_{AX80} φ80mm	1.58	1.61	1.61	1.60	—	1.58	1.60
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.02	-0.01	0.00	-0.01	—	-0.02	-0.01
	After Test	r^*_{AX}	-0.44	-0.40	-0.39	-0.39	—	-0.44	0.39
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.35	-0.31	-0.30	-0.31	—	-0.35	-0.31

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		20	20	50	80	—	0	80
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.67	1.71	1.74	1.78	—	1.77	1.78

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.97	44,000 *	20 ~ 80	400,000 *	0 ~ 80

$$r^*_{BX \text{ or } AX} = \{ r_{BX78 \text{ or } AX78} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (23 - 41)

Drill Hole No. : DHT -1	Test Depth : 74.3 m	Water Table Depth : 51.2 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 , 3 , 1
Loading Pattern : - 30 - 10 - 70 - 10 - 100- 10 - 100- - -			
Test Date : Aug. 1990	Operator : SERMRIT	Remarks: The repeated loading data are unreliable.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		Initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 14:40	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			10.0	30.0	70.0	100.0	100<	10.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.95	1.99	2.05	2.12	—	2.14	2.16
Calibration by Pipe (mm)	Befor. Test T_B 10:50	r_{BX76} φ76mm	0.00	0.00	0.00	0.00	—	0.00	0.00
		r_{BX80} φ80mm	1.91	1.94	1.95	1.92	—	1.91	1.92
	After Test T_A 12:20	r_{AX76} φ76mm	-0.01	-0.02	-0.03	-0.03	—	-0.01	-0.03
		r_{AX80} φ80mm	1.88	1.88	1.89	1.88	—	1.88	1.88
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.09	-0.06	-0.05	-0.08	—	-0.09	-0.08
	After Test	r^*_{AX}	-0.12	-0.12	-0.11	-0.13	—	-0.13	-0.13
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.11	-0.10	-0.09	-0.11	—	-0.11	-0.11

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		10.0	20.0	60.0	90.0	90<	0.0	90.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		2.07	2.11	2.16	2.23	—	2.25	2.27

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	40.	23,000	20 ~ 90	———	———

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (24 − 41)

Drill Hole No. : DHT −1	Test Depth : 83.5 m	Water Table Depth : 51.1 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 , 3 , 2-3
Loading Pattern : − 30 − 10 − 60 − 10 − 100− 10 − 100− − −			
Test Date : Aug. 10. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
	13:15		15.0	30.0	60.0	100.0	100<	15.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.98	2.03	2.13	2.19	—	2.15	2.20
Calibration by Pipe (mm)	Befor. Test T_B 9:30	r_{BX76} φ76mm	-0.10	-0.09	-0.09	-0.11	—	-0.10	-0.11
		r_{BX80} φ80mm	1.83	1.85	1.88	1.87	—	1.83	1.87
	After Test T_A 15:30	r_{AX76} φ76mm	-0.23	-0.22	-0.22	-0.23	—	-0.23	-0.23
		r_{AX80} φ80mm	1.66	1.66	1.68	1.70	—	1.66	1.70
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.17	-0.15	-0.12	-0.13	—	-0.17	-0.13
	After Test	r^*_{AX}	-0.34	-0.34	-0.33	-0.31	—	-0.34	-0.31
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.28	-0.28	-0.26	-0.25	—	-0.27	-0.26

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		15.0	15.0	45.0	85.0	85<	0.0	85.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		2.26	2.31	2.39	2.44	—	2.42	2.46

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	4.0	23,000	15 ~ 85	110,000	0 ~ 85

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad$ $Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad$ $D,\ Es = (1+\nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (25 − 41)

Drill Hole No.: DHT −1	Test Depth : 91.3 m	Water Table Depth : 51.1 m	Drill Hole Diameter : 76mm
Geology : silty fine-grained sandstone			Rock Classification : 1 , 2-3, 1
Loading Pattern : − 30 − 10 − 60 − 10 − 100− 10 − 100− − −			
Test Date : Sep. 11. 1990	Operator : TEERACHAI N.	Remarks: The 3rd peak data are not reliable.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
	10:40		10.0	30.0	60.0	100.0	100<	10.0	60.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.07	0.11	0.14	—	—	0.16	0.18
Calibration by Pipe (mm)	Befor. Test T_B 8:45	r_{BX76} φ76mm	-0.10	-0.09	-0.09	—	—	-0.10	-0.09
		r_{BX80} φ80mm	1.83	1.85	1.88	—	—	1.83	1.88
	After Test T_A 15:30	r_{AX76} φ76mm	-0.23	-0.22	-0.22	—	—	-0.23	-0.22
		r_{AX80} φ80mm	1.65	1.66	1.68	—	—	1.65	1.68
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.10	-0.09	-0.09	—	—	-0.10	-0.10
	After Test	r^*_{AX}	-0.23	-0.23	-0.23	—	—	-0.23	-0.24
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.14	-0.13	-0.13	—	—	-0.14	-0.14

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		10.0	20.0	50.0	—	90<	0.0	50.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.21	0.24	0.27	—	—	0.30	0.32

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	49,000	20 ～ 50	82,000	0 ～ 50

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad$ $Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad$ $D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (26 - 41)

Drill Hole No. : DHT -1	Test Depth : 102.3 m	Water Table Depth : 51.2 m	Drill Hole Diameter : 76mm
Geology : alternation of fine-grained sandstone and siltstone			Rock Classification : 1 , 2-3, 2-3
Loading Pattern : - 35 -13.4- 70 -13.4- 100-13.4- 100- - -			
Test Date : Sep. 10. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 15:00	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			13.4	35.0	70.0	100.0	100<	13.4	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.03	0.06	0.08	0.14	—	0.13	0.15
Calibration by Pipe (mm)	Befor. Test T_B 10:30	r_{BX76} φ76mm	-0.19	-0.19	-0.19	-0.21	—	-0.19	-0.21
		r_{BX80} φ80mm	1.72	1.74	1.75	1.75	—	1.72	1.75
	After Test T_A 17:15	r_{AX76} φ76mm	-0.17	-0.18	-0.18	-0.18	—	-0.17	-0.18
		r_{AX80} φ80mm	1.80	1.80	1.80	1.80	—	1.80	1.80
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.19	-0.19	-0.19	-0.21	—	-0.20	-0.21
	After Test	r^*_{AX}	-0.17	-0.18	-0.18	-0.18	—	-0.17	-0.18
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.18	-0.18	-0.18	-0.19	—	-0.18	-0.19

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		13.4	21.6	56.6	86.6	87<	0.0	86.6
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.21	0.24	0.26	0.33	—	0.31	0.34

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Blastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	32,000	22 ~ 87	140,000	0 ~ 87

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad$ $Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad$ $D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (27 – 41)

Drill Hole No. : DHT –1	Test Depth : 103.8 m	Water Table Depth : 51.2 m	Drill Hole Diameter : 76mm
Geology : fine-grained sandstone			Rock Classification : 1 , 2 , 3
Loading Pattern : – 35 – 15 – 70 – 15 – 100– 15 – 100– – –			
Test Date : Sep. 10. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time T_T 13:00	Pressure P'_x (kgf/cm²)	initial P_0	1st peak P'_1	2nd peak P'_2	3rd peak P'_3	yield P'_y	minimum P'_{min}	maximum P'_{max}
			15.0	35.0	70.0	100.0	100<	15.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			-0.37	-0.29	-0.24	-0.21	—	-0.19	-0.18
Calibration by Pipe (mm)	Befor. Test T_B 10:30	r_{BX76} φ76mm	-0.19	-0.19	-0.19	-0.21	—	-0.19	-0.21
		r_{BX80} φ80mm	1.72	1.74	1.75	1.75	—	1.72	1.75
	After Test T_A 17:15	r_{AX76} φ76mm	-0.17	-0.19	-0.18	-0.18	—	-0.17	-0.18
		r_{AX80} φ80mm	1.80	1.80	1.80	1.80	—	1.80	1.80
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.17	-0.18	-0.18	-0.21	—	-0.18	-0.21
	After Test	r^*_{AX}	-0.16	-0.19	-0.18	-0.18	—	-0.17	-0.18
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.17	-0.18	-0.18	-0.20	—	-0.18	-0.20

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		15.0	35.0	70.0	85.0	85<	0.0	85.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		-0.20	-0.11	-0.06	-0.01	—	-0.01	0.02

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	46,000	20 ~ 85	140,000	0 ~ 85

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (28 - 41)

Drill Hole No. : DHT -1	Test Depth : 123.3 m	Water Table Depth : 51.2 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 , 3 , 2-3
Loading Pattern : - 30 - 15 - 70 - 15 - 100- 15 - 100- - -			
Test Date : Aug. 20. 1990	Operator : SERMRIT	Remarks: incomplete caribration, * large error	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 14:40	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			15.0	30.0	70.0	100.0	100<	15.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.47	0.52	0.53	0.53	—	0.54	0.54
Calibration by Pipe (mm)	Befor. Test T_B	r_{BX76} φ76mm	0.00	0.00	0.00	0.00	—	0.00	0.00
		r_{BX80} φ80mm	1.93	1.94	1.95	1.92	—	1.93	1.92
	After Test T_A	r_{AX76} φ76mm	-0.01	-0.02	-0.03	-0.03	—	-0.01	-0.03
		r_{AX80} φ80mm	1.88	1.89	1.89	1.88	—	1.88	1.88
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.02	-0.01	-0.01	-0.02	—	-0.02	-0.02
	After Test	r^*_{AX}	-0.04	-0.05	-0.05	-0.05	—	-0.04	-0.05
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.03	-0.03	-0.03	-0.04	—	-0.03	-0.04

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		15.0	15.0	55.0	85.0	85<	0.0	85.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.50	0.55	0.56	0.57	—	0.57	0.58

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	170,000 *	15 ~ 85	400,000 *	0 ~ 85

$r^*_{BX\ or\ AX} = \{r_{BX78\ or\ AX78} \cdot (2.0 - \Delta r'_x) + (r_{BX80\ or\ AX80} - 2.0) \cdot \Delta r'_x\} / 2$

$r^*_x = \{r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B)\} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (29 - 41)

Drill Hole No. : DHT -1	Test Depth : 135.0 m	Water Table Depth : 51.3 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 , 3 , 1-2
Loading Pattern : - 40 - 15 - 70 - 15 - 100- 15 - 100- - -			
Test Date : Aug. 1990	Operator : SERMRIT	Remarks: incomplete caribiation, *large error	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 15:20	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			15.0	40.0	70.0	100.0	100<	15.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.08	0.11	0.11	0.12	—	0.16	0.14
Calibration by Pipe (mm)	Befor. Test T_B 10:40	r_{BX76} φ76mm	0.02	0.02	0.02	0.01	—	0.02	0.01
		r_{BX80} φ80mm	2.01	2.02	2.02	2.04	—	2.01	2.04
	After Test T_A 17:00	r_{AX76} φ76mm	-0.15	-0.15	-0.16	-0.17	—	-0.15	-0.17
		r_{AX80} φ80mm	1.73	1.71	1.71	1.69	—	1.73	1.69
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.02	0.02	0.01	0.01	—	0.02	0.01
	After Test	r^*_{AX}	-0.16	-0.16	-0.17	-0.18	—	-0.16	-0.18
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.11	-0.11	-0.12	-0.13	—	-0.11	-0.13

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		15.0	25.0	55.0	85.0	85<	0.0	85.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.19	0.22	0,23	0.25	—	0.27	0.27

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	95,000 *	25 ~ 85	400,000< *	0 ~ 85

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (30 − 41)

Drill Hole No. : DHT −1	Test Depth : 156.0 m	Water Table Depth : 51.2 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 , 3 ,1-2
Loading Pattern : − 40 − 15 − 70 − 15 − 100− 15 − 100− − −			
Test Date : Aug. 1990	Operator : SERMRIT	Remarks: incomplete caribiation, *large error	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 13:40	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			18.0	40.0	70.0	100.0	100<	20.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.00	0.05	0.06	0.06	—	0.08	0.07
Calibration by Pipe (mm)	Befor. Test T_B 10:40	r_{BX76} φ76mm	0.02	0.02	0.02	0.01	—	0.02	0.01
		r_{BX80} φ80mm	2.01	2.02	2.02	2.04	—	2.01	2.04
	After Test T_A 17:00	r_{AX76} φ76mm	-0.15	-0.15	-0.16	-0.17	—	-0.15	-0.17
		r_{AX80} φ80mm	1.73	1.71	1.71	1.69	—	1.73	1.69
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.02	0.02	0.02	0.01	—	0.02	0.01
	After Test	r^*_{AX}	-0.15	-0.15	-0.16	-0.17	—	-0.15	-0.17
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.06	-0.06	-0.07	-0.08	—	-0.06	-0.08

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		18.0	22.0	52.0	82.0	82<	0.0	82.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.06	0.11	0.13	0.14	—	0.14	0.15

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	150,000 *	22 ～ 82	400,000 *	2 ～ 82

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (31 - 41)

Drill Hole No. : DHT -2	Test Depth : 17.5 m	Water Table Depth : 22.75m	Drill Hole Diameter : 76mm
Geology : weathered siltstone			Rock Classification : 3 ,4-5, 5
Loading Pattern : - 20 - 10 - 22 - - - - - - -			
Test Date : Aug. 1, 1990	Operator : TEERACHAI N.	Remarks: Drill hole diameter was large.	

		Time		Virgin Loading					Repeated Loading	
Measured Test Data		T_T 13:40	Pressure P'_x (kgf/cm²)	initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
				P'_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
				6.0	10.0	15.0	20.0	22.0<	10.0	20.0
			Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
				1.52	1.65	1.79	1.98	—	1.91	2.04
Calibration by Pipe (mm)	Befor. Test T_B 9:40		r_{BX76} φ76mm	0.03	0.04	0.04	0.04	—	0.04	0.04
			r_{BX80} φ80mm	1.90	1.91	1.92	1.92	—	1.91	1.92
	After Test T_A 14:30		r_{AX76} φ76mm	0.14	0.15	0.15	0.16	—	0.15	0.16
			r_{AX80} φ80mm	1.95	2.01	2.02	2.02	—	2.01	2.02
Calibration Value (mm)	Befor. Test After Test		r^*_{BX} r^*_{AX}	-0.07 -0.00	-0.07 +0.03	-0.07 +0.03	-0.08 +0.02	—	-0.08 +0.02	-0.08 +0.02
	At Test		r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
				-0.01	+0.01	+0.01	0.00	—	+0.00	+0.00

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		6.0	4.0	9.0	14.0	16.0<	4.0	14.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.53	1.64	1.78	1.98	—	1.91	2.04

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	4.0	1,500	4 ~ 14	4,000	4 ~ 14

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (32 − 41)

Drill Hole No. : DHT −2	Test Depth : 24.3 m	Water Table Depth : 22.75m	Drill Hole Diameter : 76mm
Geology : mainly siltstone with sandstone streaks			Rock Classification : 2 ,3-4, 2
Loading Pattern : − 25 − 10 − 50 − 10 − 100− 10 − 100− 10 − 100−			
Test Date : Aug. 1. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 11:00	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			6.0	25.0	50.0	100.0	100.0<	10.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.51	0.62	0.74	1.04	—	1.01	1.17
Calibration by Pipe (mm)	Befor. Test T_B 9:40	r_{BX76} φ76mm	0.03	0.05	0.06	0.06	—	0.04	0.06
		r_{BX80} φ80mm	1.92	1.92	1.93	1.92	—	1.91	1.92
	After Test T_A 14:30	r_{AX76} φ76mm	0.13	0.17	0.17	0.17	—	0.15	0.17
		r_{AX80} φ80mm	1.97	2.02	2.02	1.96	—	2.01	1.96
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.00	0.01	0.01	-0.01	—	-0.03	-0.02
	After Test	r^*_{AX}	0.09	0.12	0.11	0.06	—	0.08	0.05
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			+0.02	+0.04	+0.04	+0.01	—	0.00	0.00

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		6.0	19.0	44.0	94.0	94.0<	4.0	94.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.49	0.58	0.70	1.03	—	1.01	1.17

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	8,300	19 ～ 94	29,000	4 ～ 94

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad$ $Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad$ $D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (33 − 41)

Drill Hole No. : DHT −2	Test Depth : 35.0 m	Water Table Depth : 22.65m	Drill Hole Diameter : 76mm
Geology : fine-grained sandstone (no cracks)			Rock Classification :2-3, 1-2, 1
Loading Pattern : − 25 − 10 − 50 − 10 − 100− 10 − 100− 10 − 25 −			
Test Date : Jul. 31. 1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 15:50	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			6.0	25.0	50.0	100.0	100.0<	10.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.49	0.57	0.61	0.67	—	0.59	0.68
Calibration by Pipe (mm)	Befor. Test T_B 11:20	r_{BX76} φ76mm	-0.07	-0.03	-0.01	0.00	—	-0.05	0.00
		r_{BX80} φ80mm	1.86	1.90	1.90	1.88	—	1.88	1.88
	After Test T_A 17:10	r_{AX76} φ76mm	0.07	0.11	0.13	0.18	—	0.08	0.18
		r_{AX80} φ80mm	1.96	2.03	2.06	2.10	—	2.00	2.10
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.09	-0.05	-0.04	-0.04	—	-0.07	—
	After Test	r^*_{AX}	+0.04	0.09	0.11	0.15	—	+0.06	—
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.01	0.06	0.08	0.11	—	0.03	0.11

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		6.0	19.0	44.0	94.0	94<	4.0	94.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.48	0.51	0.53	0.56	—	0.56	0.57

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	80,000	19 ～ 94	500,000	4 ～ 94

$$r^*_{BX\ or\ AX} = \{ r_{BX78\ or\ AX78} \cdot (2.0 - \Delta r'_x) + (r_{BX80\ or\ AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (34 – 41)

Drill Hole No. : DHT –2	Test Depth : 47.0 m	Water Table Depth : 22.65m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 ,3-4, 1
Loading Pattern : – 25 – 10 – 50 – 10 – 100– 10 – 100– 10 – 100–			
Test Date : Jul. 31.1990	Operator : TEERACHAI N.	Remarks:	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 13:50	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			8.0	25.0	50.0	100.0	100.0<	10.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.09	0.17	0.25	0.36	—	0.24	0.37
Calibration by Pipe (mm)	Befor. Test T_B 11:20	r_{BX76} φ76mm	-0.06	-0.03	-0.01	0.00	—	-0.05	0.00
		r_{BX80} φ80mm	1.87	1.90	1.90	1.88	—	1.88	1.88
	After Test T_A 17:10	r_{AX76} φ76mm	0.08	0.11	0.13	0.18	—	0.08	0.18
		r_{AX80} φ80mm	1.99	2.03	2.06	2.10	—	2.00	2.10
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.06	-0.04	-0.02	-0.02	—	-0.06	—
	After Test	r^*_{AX}	0.07	0.10	0.12	0.17	—	0.07	—
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.00	0.02	0.04	0.06	—	0.00	0.06

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		8.0	17.0	42.0	92.0	92<	2.0	92.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.09	0.15	0.21	0.30	—	0.24	0.31

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.8	25,000	17 ~ 92	60,000	2 ~ 92

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (35 − 41)

Drill Hole No. : DHT −2	Test Depth : 62.0 m	Water Table Depth : 19.8 m	Drill Hole Diameter : 76mm
Geology : sandstone with siltstone streaks			Rock Classification : 1 , 3 , 1
Loading Pattern : − 25 − 10 − 50 − 10 − 100− 10 − 100− 10 − 100−			
Test Date : Jul. 30.1990	Operator : TEERACHAI N.	Remarks: Calib. data were incomplete.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 14:40	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			9.0	25.0	50.0	100.0	100.0<	10.0	100.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.47	0.52	0.58	0.60	—	0.60	0.60
Calibration by Pipe (mm)	Befor. Test T_B 13:10	r_{BX76} φ76mm	(0.00)	(0.02)	(0.01)	(0.01)	(—)	(0.00)	(0.01)
		r_{BX80} φ80mm	1.98	2.00	2.00	2.00	—	1.98	2.00
	After Test T_A 15:20	r_{AX76} φ76mm	0.47	0.48	0.48	0.45	—	0.47	0.45
		r_{AX80} φ80mm	2.35	2.37	2.40	2.37	—	2.36	2.37
Calibration Value (mm)	Befor. Test	r^*_{BX}	-0.02	0.00	0.00	0.00	—	-0.02	0.00
	After Test	r^*_{AX}	0.44	0.45	0.46	0.43	—	0.44	0.43
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.30	0.31	0.32	0.30	—	0.30	0.30

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		9.0	16.0	41.0	91.0	91<	1.0	91.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.17	0.21	0.26	0.30	—	0.30	0.30

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	40,000	16 ～ 91	500,000<	1 ～ 91

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (36 – 41)

Drill Hole No. : DHT –3	Test Depth : 18.5 m	Water Table Depth : 8.4 m	Drill Hole Diameter : 76mm
Geology : fine-grained sandstone			Rock Classification : 3 , 3 , 1
Loading Pattern : – 35 – 10 – 50 – 10 – 100– 10 – 150– – –			
Test Date : Jul. 3. 1990	Operator : TEERACHAI N.	Remarks: Calib. data were incomplete.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 11:20	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			7.0	35.0	50.0	70.0	150.0<	10.0	70.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.30	0.40	0.49	0.57	—	0.62	0.65
Calibration by Pipe (mm)	Befor. Test T_B 9:40	r_{BX78} φ76mm	(-0.03)	(0.01)	(0.01)	(0.01)	(—)	(0.00)	(0.01)
		r_{BX80} φ80mm	2.03	2.03	2.02	2.00	—	2.02	2.00
	After Test T_A 15:10	r_{AX78} φ76mm	0.17	0.18	0.17	0.14	—	0.17	0.14
		r_{AX80} φ80mm	1.99	2.15	2.16	2.15	—	2.12	2.15
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.03	0.03	0.02	0.00	—	0.02	0.00
	After Test	r^*_{AX}	0.14	0.17	0.17	0.14	—	0.15	0.14
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.06	0.07	0.07	0.04	—	0.06	0.04

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		7.0	28.0	43.0	63.0	143<	3.0	63.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.24	0.33	0.42	0.53	—	0.56	0.61

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	8,900	28 ~ 63	60,000	3 ~ 63

$r^*_{BX \text{ or } AX} = \{ r_{BX78 \text{ or } AX78} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (37 – 41)

Drill Hole No. : DHT –3	Test Depth : 24.0 m	Water Table Depth : 8.4 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 ,3-4, 3
Loading Pattern : – 25 – 10 – 50 – 10 – 100– 10 – 150– – –			
Test Date : Jul. 3. 1990	Operator : TEERACHAI N.	Remarks: Calibration data were incomplete.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 13:40	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			8.0	25.0	50.0	70.0	75.0	10.0	50.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.79	0.87	0.93	0.97	0.98	0.92	0.95
Calibration by Pipe (mm)	Befor. Test T_B 9:40	r_{BX76} φ76mm	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)
		r_{BX80} φ80mm	2.02	2.03	2.02	2.00	2.00	2.02	2.02
	After Test T_A 15:10	r_{AX76} φ76mm	0.16	0.18	0.17	0.14	0.13	0.17	0.17
		r_{AX80} φ80mm	2.10	2.15	2.16	2.15	2.14	2.12	2.16
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.02	0.03	0.02	0.00	0.00	0.02	0.02
	After Test	r^*_{AX}	0.14	0.17	0.17	0.14	0.13	0.15	0.17
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.11	0.13	0.13	0.10	0.09	0.12	0.13

		P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
Adjusted Test Data	Pressure P_x (kgf/cm²)	8.0	17.0	42.0	62.0	67.0	2.0	42.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.68	0.74	0.80	0.87	0.89	0.80	0.82

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	17,000	17 ~ 62	100,000	2 ~ 42

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (38 − 41)

Drill Hole No. : DHT −3	Test Depth : 31.0 m	Water Table Depth : 8.4 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 ,3-4, 3
Loading Pattern : − 25 − 10 − 50 − 10 − 100− 10 − 105− − −			
Test Date : Jul. 12.1990	Operator : TEERACHAI N.	Remarks: Burst of rubber tube, incomplete carib.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 13:30	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			10.0	25.0	50.0	—	105<	10.0	50.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.18	1.38	1.58	—	—	1.52	1.58
Calibration by Pipe (mm)	Befor. Test T_B 11:30	r_{BX76} φ76mm	(0.01)	(0.01)	(0.01)	(—)	(—)	(0.01)	(0.01)
		r_{BX80} φ80mm	1.98	2.00	2.00	—	—	1.98	2.00
	After Test T_A :	r_{AX76} φ76mm	—	—	—	—	—	—	—
		r_{AX80} φ80mm	—	—	—	—	—	—	—
Calibration Value (mm)	Befor. Test	r^*_{BX}	—	—	—	—	—	—	—
	After Test	r^*_{AX}	—	—	—	—	—	—	—
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			-0.02	0.00	0.00	—	—	-0.02	0.00

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		10.0	15.0	40.0	—	95<	0.0	40.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.20	1.38	1.58	—	—	1.54	1.58

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	6,300	15 ～ 40	50,000	0 ～ 40

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (39 − 41)

Drill Hole No. : DHT −3	Test Depth : 32.5 m	Water Table Depth : 8.4 m	Drill Hole Diameter : 76mm
Geology : siltstone			Rock Classification : 1 ,3-4, 3
Loading Pattern : − 25 − 10 − 50 − 10 − 100− 10 − 135− − −			
Test Date : Jul. 11.1990	Operator : TEERACHAI N.	Remarks: Calibration were incomplete.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 14:20	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			10.0	25.0	50.0	70.0	75.0	10.0	50.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.26	1.37	1.51	1.59	1.61	1.48	1.55
Calibration by Pipe (mm)	Befor. Test T_B 13:00	r_{BX76} φ76mm	(—)	(—)	(—)	(—)	(—)	(—)	(—)
		r_{BX80} φ80mm	2.00	2.03	2.02	2.01	2.01	2.00	2.02
	After Test T_A 15:50	r_{AX76} φ76mm	0.32	0.38	0.39	0.39	0.39	0.32	0.39
		r_{AX80} φ80mm	1.83	1.88	1.91	1.91	1.91	1.83	1.91
Calibration Value (mm)	Befor. Test	r^*_{BX}	0.00	0.03	0.02	0.01	0.01	0.00	0.02
	After Test	r^*_{AX}	0.01	0.04	0.03	0.01	0.00	-0.04	0.02
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.00	0.03	0.02	0.01	0.01	-0.02	0.02

		P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
Adjusted Test Data	Pressure P_x (kgf/cm²)	10.0	15.0	40.0	60.0	65.0	0.0	40.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		1.26	1.34	1.49	1.58	1.60	1.50	1.53

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	9,400	15 ～ 60	70,000	0 ～ 40

$$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$$

$$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$$

$$P_x = P'_x - P_0 \qquad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$$

$$\Delta r_x = \Delta r'_x - r^*_x \qquad D,\ Es = (1+\nu) \cdot Rm \cdot \Delta P / \Delta r$$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (40 − 41)

Drill Hole No. : DHT −3	Test Depth : 39.3 m	Water Table Depth : 8.4 m	Drill Hole Diameter : 76mm
Geology : sandy siltstone			Rock Classification : 1 ,3-4, 3
Loading Pattern : − 25 − 10 − 50 − 10 − 100− − − − −			
Test Date : Jul. 13.1990	Operator : TEERACHAI N.	Remarks: Calibration were incomplete.	

			Virgin Loading					Repeated Loading	
Measured Test Data	Time		initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
	T_T 13:00	Pressure P'_x (kgf/cm²)	P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			10.0	25.0	50.0	100.0	100<	10.0	50.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			1.04	1.12	1.24	1.33	—	1.24	1.26
Calibration by Pipe (mm)	Befor. Test T_B 11:10	r_{BX76} φ76mm r_{BX80} φ80mm	(-0.02) (1.96)	(-0.01) (1.99)	(-0.01) (1.99)	(0.00) (2.00)	— —	(-0.02) (1.96)	(-0.01) (1.99)
	After Test T_A 15:20	r_{AX76} φ76mm r_{AX80} φ80mm	0.41 2.41	0.41 2.42	0.41 2.43	(0.41) (2.42)	— —	0.41 2.41	0.41 2.43
Calibration Value (mm)	Befor. Test After Test	r^*_{BX} r^*_{AX}	— 0.41	— 0.42	— 0.42	— 0.42	— —	— 0.41	— 0.42
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.41	0.42	0.42	0.42	—	0.41	0.42

Adjusted Test Data	Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
		10.0	15.0	40.0	90.0	90<	0.0	40.0
	Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
		0.63	0.70	0.82	0.91	—	0.83	0.84

Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	18,000	15 ～ 90	200,000	0 ～ 40

$r^*_{BX \text{ or } AX} = \{ r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x \} / 2$

$r^*_x = \{ r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B) \} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D,\ Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$

SUMMARY SHEET OF DRILL HOLE DEFORMATION TEST (41 - 41)

Drill Hole No. : DHT -3	Test Depth : 43.7 m	Water Table Depth : 8.4 m	Drill Hole Diameter : 76mm
Geology : siltstone with streaks of fine-grained sandstone			Rock Classification : 1 , 3 , 1
Loading Pattern : - 25 - 10 - 50 - 10 - 100-			
Test Date : Jul. 13.1990	Operator : TEERACHAI N.	Remarks: Calib. were incomplete. * large error	

Measured Test Data	Time		Virgin Loading					Repeated Loading	
	T_T 14:10	Pressure P'_x (kgf/cm²)	initial	1st peak	2nd peak	3rd peak	yield	minimum	maximum
			P_0	P'_1	P'_2	P'_3	P'_y	P'_{min}	P'_{max}
			10.0	25.0	50.0	100.0	100<	10.0	50.0
		Displacement $\Delta r'_x$ (mm)	$\Delta r'_0$	$\Delta r'_1$	$\Delta r'_2$	$\Delta r'_3$	$\Delta r'_y$	$\Delta r'_{min}$	$\Delta r'_{max}$
			0.83	0.84	0.85	0.87	—	0.86	0.86
Calibration by Pipe (mm)	Befor. Test T_B 11:10	r_{BX76} ϕ76mm	(-0.02)	(-0.01)	(-0.01)	(0.00)	—	(-0.02)	(-0.01)
		r_{BX80} ϕ80mm	(1.96)	(1.99)	(1.99)	(2.00)	—	(1.96)	(1.99)
	After Test T_A 15:20	r_{AX76} ϕ76mm	0.41	0.41	0.41	(0.41)	—	0.41	0.41
		r_{AX80} ϕ80mm	2.41	2.42	2.43	(2.42)	—	2.41	2.43
Calibration Value (mm)	Befor. Test After Test	r^*_{BX} r^*_{AX}	—	—	—	—	—	—	—
			0.41	0.41	0.42	0.41	—	0.41	0.42
	At Test	r^*_x	r^*_0	r^*_1	r^*_2	r^*_3	r^*_y	r^*_{min}	r^*_{max}
			0.41	0.41	0.42	0.41	—	0.41	0.42

Adjusted Test Data								
Pressure P_x (kgf/cm²)	P_0	P_1	P_2	P_3	P_y	P_{min}	P_{max}
	10.0	15.0	40.0	90.0	90<	0.0	40.0
Displacement Δr_x (mm)	Δr_0	Δr_1	Δr_2	Δr_3	Δr_y	Δr_{min}	Δr_{max}
	0.42	0.43	0.43	0.46	—	0.45	0.44

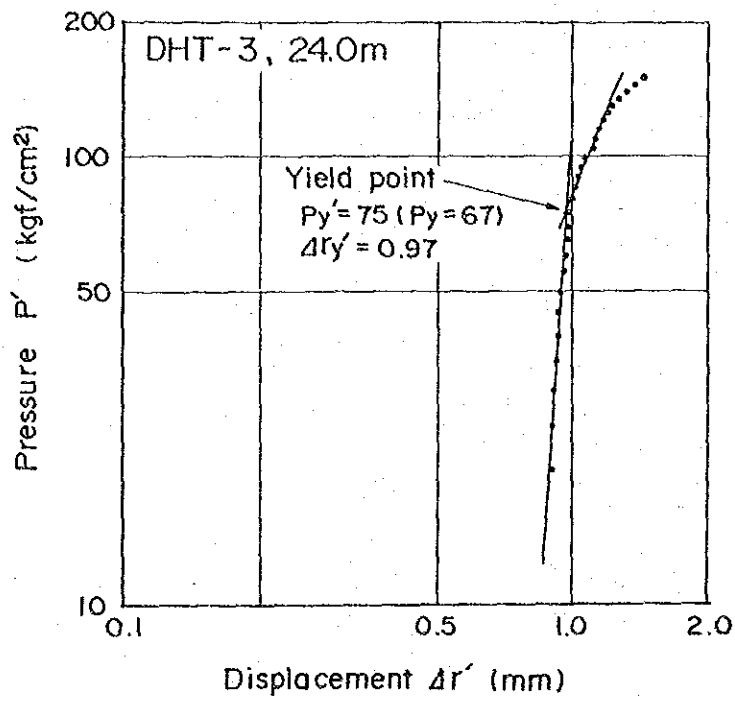
Deformation Property	Presumed Poisson's Ratio ν	Mean Drill Hole Radius Rm (cm)	Deformation Modulus D (kgf/cm²)	Stress Range (kgf/cm²)	Secant Elastic Modulus Es (kgf/cm²)	Stress Range (kgf/cm²)
	0.30	3.9	100,000*	15 ~ 90	200,000<*	0 ~ 40

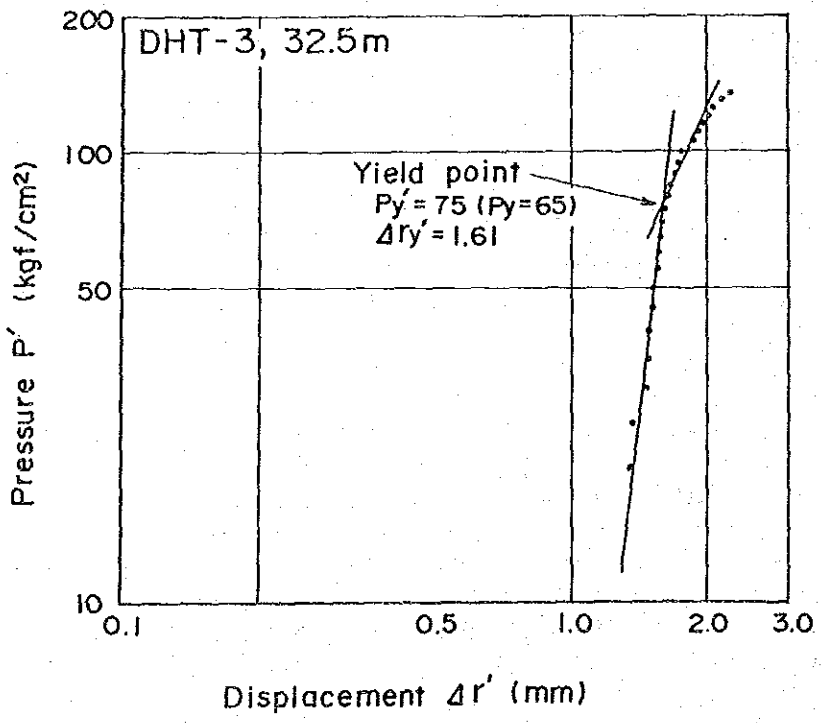
$r^*_{BX \text{ or } AX} = \{r_{BX76 \text{ or } AX76} \cdot (2.0 - \Delta r'_x) + (r_{BX80 \text{ or } AX80} - 2.0) \cdot \Delta r'_x\} / 2$

$r^*_x = \{r^*_{BX} \cdot (T_A - T_T) + r^*_{AX} \cdot (T_T - T_B)\} / (T_A - T_B)$

$P_x = P'_x - P_0$ $\quad Rm = 3.8 + (\Delta r_{max} + \Delta r_1) / 20$

$\Delta r_x = \Delta r'_x - r^*_x$ $\quad D, Es = (1 + \nu) \cdot Rm \cdot \Delta P / \Delta r$





Yield Point in Pressure Displacement Curve

A-6 DATA OF DRILL CORE TEST

A-6-(1) DRY DENSITY, P-WAVE VELOCITY AND COMPRESSIVE STRENGTH

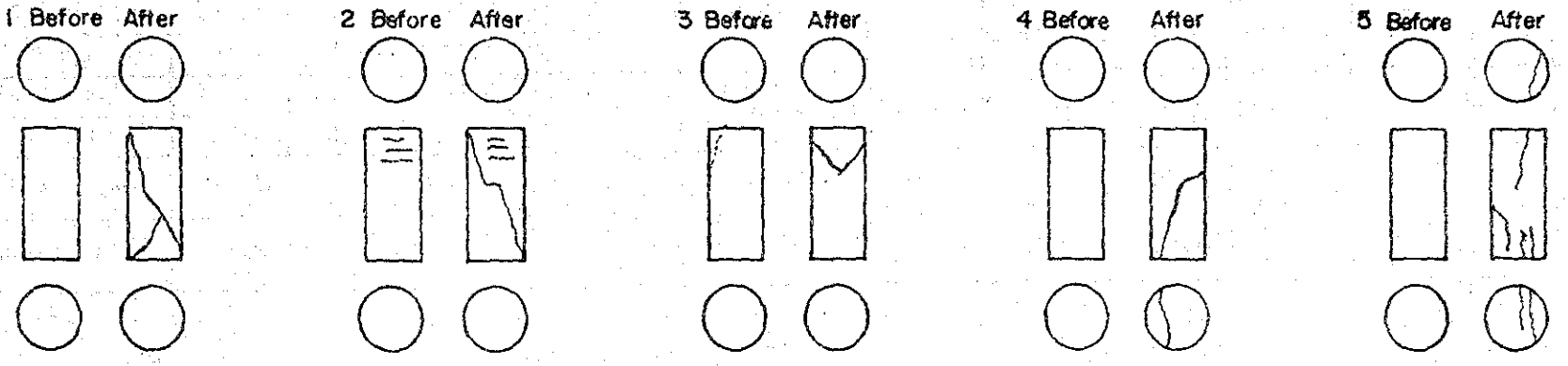
A-6-(2) SPECIFIC GRAVITY AND ABSORPTION

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 8/11/33 MATERIAL TESTING SECTION

Type of Rock _____ Tested by PBC-ASD GEOLOGY & SOIL ENGINEERING DIVISION

Checked by PRK PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Diameter (sq.cm) Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg/cm.^{2}
1	DHU-1	5.15	5.14	5.13	5.14	20.75	531.98	614.53	2.84	2.26		778	37
	12.10-12.20	13.11	13.12	13.09	13.11	272.03							
2	DHU-1	5.09	5.07	5.07	5.08	20.27	450.63	431.47	4.44	2.14		579	29
	13.00-13.30				9.97	202.07							
3	DHU-1	4.73	5.03	5.09	4.95	19.24	533.90	511.74	4.33	2.14		528	27
	13.00-13.30	12.415	12.40	12.40	12.41	238.82							
4	DHU-2	4.79	4.79	4.80	4.79	18.02	471.60	467.21	0.94	1.96	1,203	348	19
	17.20-17.90	13.20	13.20	13.20	13.20	237.87							
5	DHU-2	4.86	4.90	5.04	4.932	19.10	465.33	460.54	1.04	1.96	1,253	277	15
	17.20-17.90	12.325	12.31	12.32	12.32	235.37							

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 8/11/33

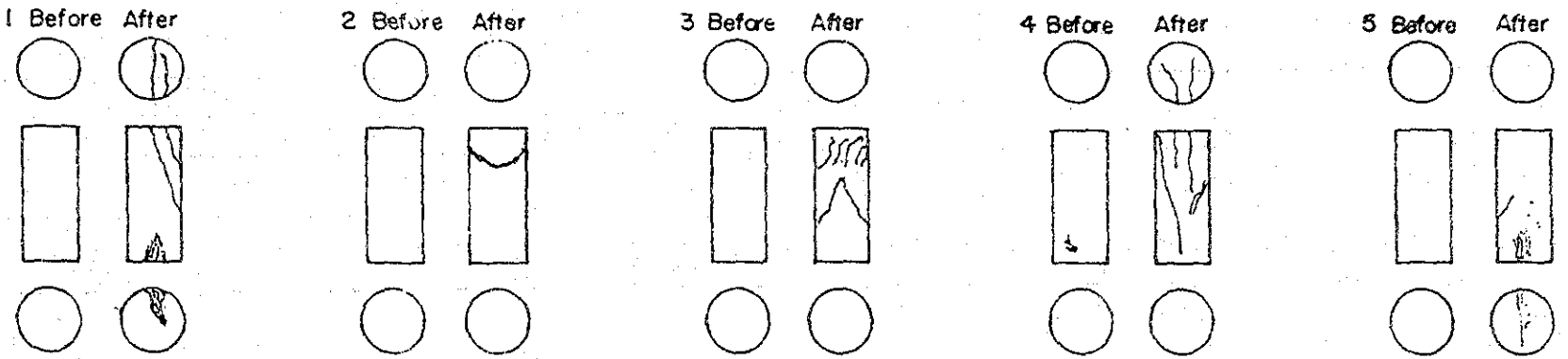
MATERIAL TESTING SECTION

Type of Rock _____ Tested by PBC

GEOLOGY & SOIL ENGINEERING DIVISION

Checked by PRK

PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



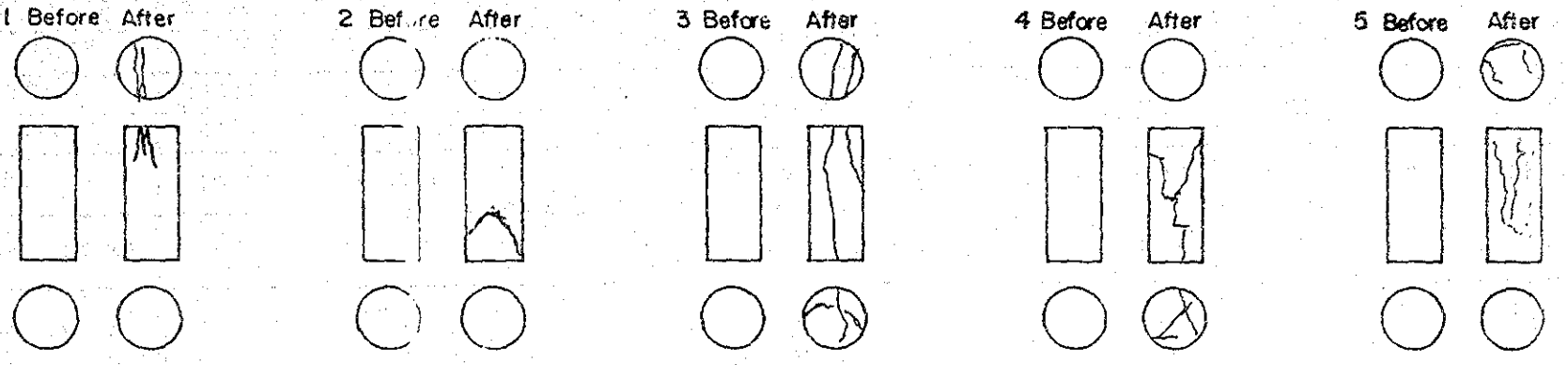
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Diameter (sq.cm) Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength $Kg./cm^2$
1	DHU-3	5.14	5.14	5.14	20.75	20.75	648.54	647.57	0.15	2.31	3,725	10930	527
	10.70-11.00	13.52	13.52	13.53	280.54	280.54							
2	DHU-3	5.16	5.16	5.15	5.15	20.83	613.52	612.60	0.15	2.31	3,926	12442	597.31
	10.70-11.00	12.74	12.72	12.70	12.72	264.96							
3	DHU-3	5.16	5.16	5.16	5.16	20.91	638.96	638.32	0.10	2.31	4,027	15372	735
	15.7-16.00	13.21	13.20	13.21	13.21	276.22							
4	DHU-3	5.16	5.16	5.16	5.16	20.91	613.65	612.91	0.12	2.30	3,911	11186	535
	15.7-16.0	12.745	12.74	12.74	12.74	266.39							
5	DHU-3	5.16	5.155	5.16	5.16	20.91	633.19	632.87	0.05	2.31	3,656	10628	508.27
	24.80-25.00	13.09	13.09	13.09	13.09	273.71							

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 8/11/33 MATERIAL TESTING SECTION

Type of Rock _____ Tested by PSL GEOLOGY & SOIL ENGINEERING DIVISION

Checked by PRK PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Diameter (sq.cm) Volume (cc)	Wt. Wet Rock (gm.)	Wt Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength $Kg./cm.^2$
1	DHU-3	5.195	5.19	5.18	5.19	21.16	600.41	599.75	0.11	2.08	3,845	6279	297
	36.0-36.45	13.58	13.61	13.62	1.360	287.72							
2	DHU-3	5.19	5.18	5.19	5.19	21.16	586.66	585.96	0.12	2.12	3,805	5349	253
	36.0-36.45	13.03	13.05	13.05	13.04	275.87							
3	DHU-4	5.18	5.18	5.18	5.18	21.07	627.15	626.02	0.18	2.32	4,228	14948	709.44
	18.0-19.0	12.77	12.79	12.77	12.78	269.33							
4	DHU-4	5.19	5.19	5.19	5.19	21.16	641.61	638.04	0.56	2.30	4,116	17533.6	828.62
	18.00-19.00	13.09	13.10	13.09	13.09	276.93							
5	DHU-4	5.17	5.18	5.18	5.17	20.99	645.67	643.93	0.27	2.26	4,314	16968.0	808.38
	34.0-34.2	13.59	13.59	13.59	13.59	285.29							

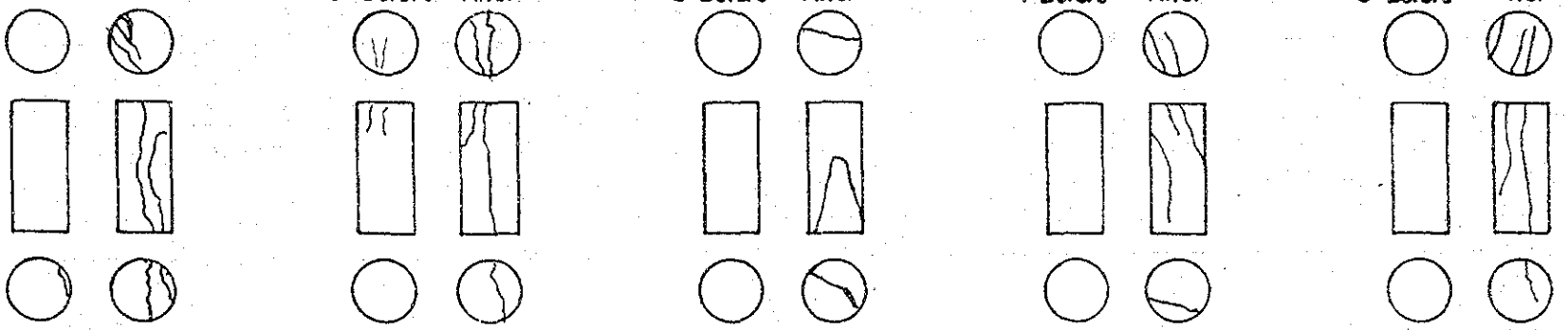
UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 8/11/33 MATERIAL TESTING SECTION

Type of Rock _____ Tested by SDW GEOLOGY & SOIL ENGINEERING DIVISION

Checked by PRK PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT

1 Before After 2 Before After 3 Before After 4 Before After 5 Before After



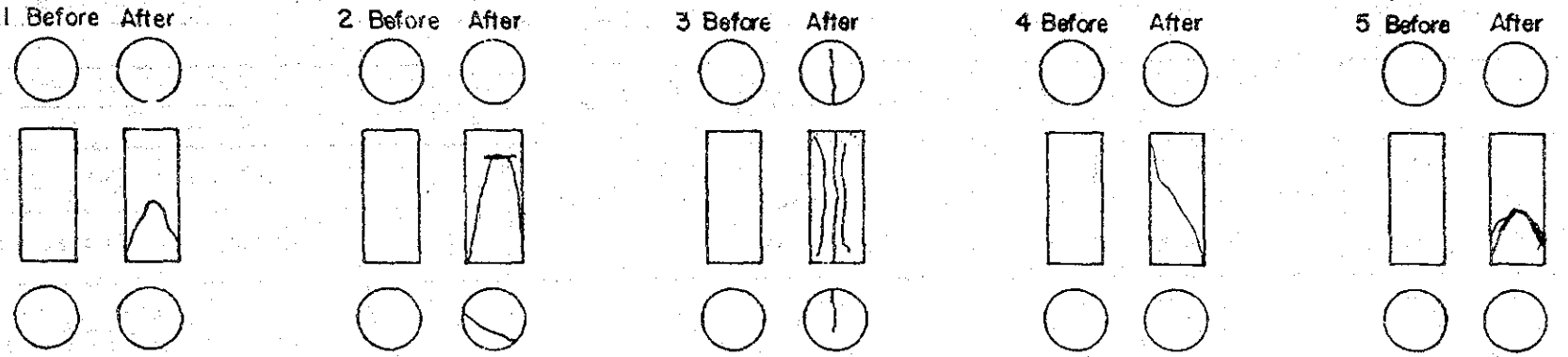
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Diameter (sq.cm) Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHU-4	5.18	5.18	5.17	5.17	20.99	682.92	681.76	0.17	2.27	4,326	10908.0	519.68
	34.2-34.7	14.34	14.34	14.30	14.32	300.62							
2	DHU-4	5.20	5.20	5.20	5.20	21.24	521.31	514.93	1.24	1.96	3,443	4848.0	228.25
	37.4-37.6	12.36	12.35	12.37	12.36	262.49							
3	DHU-5	5.16	5.16	5.16	5.16	20.91	595.42	594.71	0.12	2.24	2,506	8888.	425
	6.05-6.50	12.69	12.67	12.67	12.68	265.16							
4	DHU-5	5.16	5.15	5.15	5.15	20.83	697.12	696.70	0.06	2.24	2,513	6706	322
	6.05-6.50	14.92	14.93	14.92	14.92	310.79							
5	DHU-5	5.14	5.15	5.15	5.15	20.83	620.05	619.43	0.10	2.19	2,504	7434	357
	6.05-6.50	13.60	13.54	13.57	13.57	282.66							

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 8/11/33 MATERIAL TESTING SECTION

Type of Rock _____ Tested by CBR GEOLOGY & SOIL ENGINEERING DIVISION

Checked by PRK PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



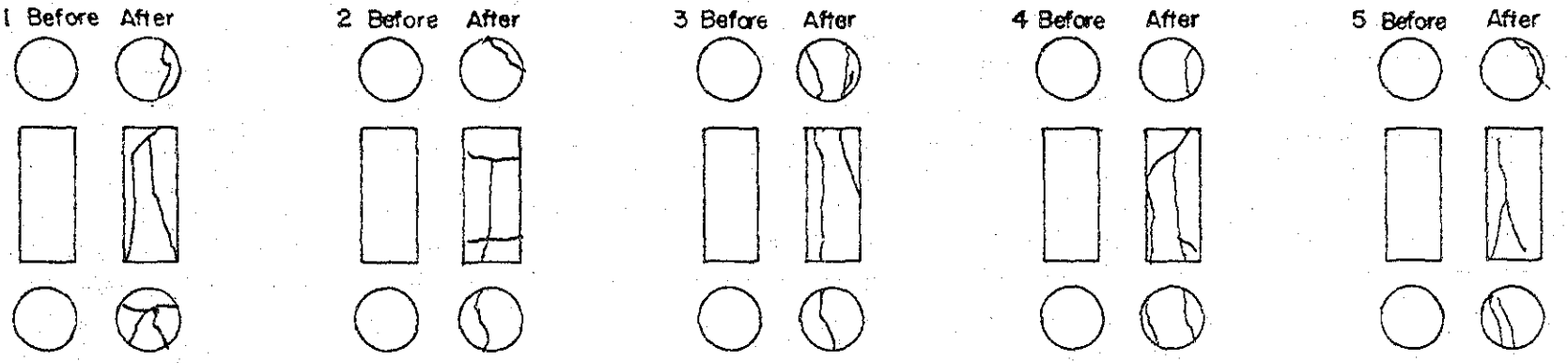
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Diameter (Sq.cm) Volume (cc.)	Wt. Wet Rock (gm.)	Wt Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHU-5	5.13	5.15	5.14	5.14	20.75	536.59	535.95	0.12	2.20	2,335	6868	331
	7.0-7.45	11.70	11.75	11.71	11.72	243.19							
2	DHU-5	5.13	5.13	5.13	5.13	20.67	574.25	573.50	0.13	2.21	2,341	6626	321
	7.0-7.45	12.54	12.56	12.55	12.55	259.40							
3	DHU-5	5.15	5.10	5.08	5.11	20.49	537.0	533.06	0.74	1.89	1,092	298	15
	14.30-14.50	13.80	13.80	13.80	13.80	282.79							
4	DHU-5	5.12	5.10	5.11	5.11	20.51	500.5	496.87	0.73	1.88	1,100	372	18
	14.50-14.70	12.89	12.91	12.90	12.90	264.56							
5	DHU-5	4.93	4.92	4.96	4.94	19.17	473.30	469.26	0.86	1.87	1,027	315	16
	16.60-16.80	13.09	13.08	13.07	13.08	250.51							

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



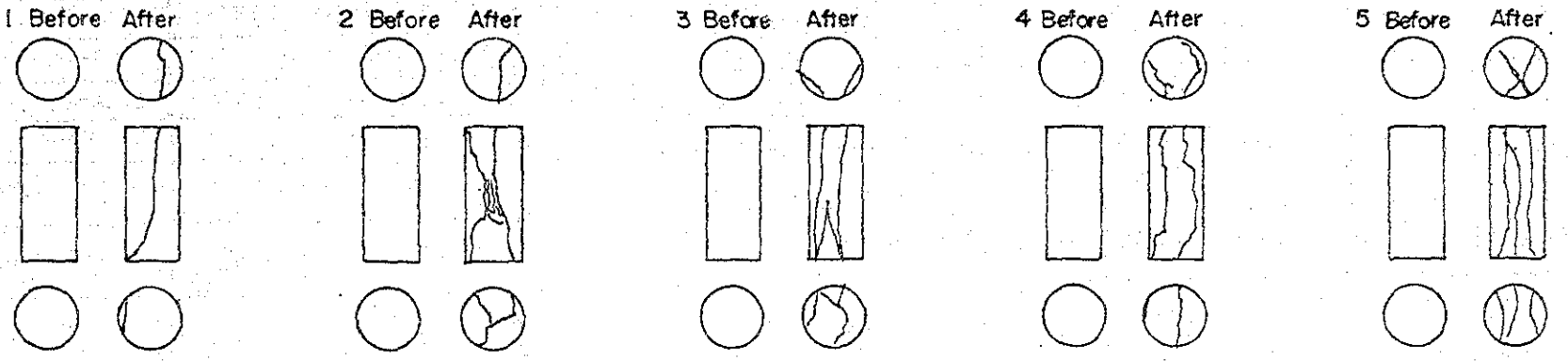
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHU-1	5.18	5.175	5.18	5.18	273.33	680.97	677.85	0.46	2.48	-	11150	529
	61.0-61.15	12.97	12.97	12.98	12.97								
2	DHU-1	5.17	5.18	5.19	5.18	275.02	689.55	686.05	0.51	2.49	-	12605	598
	61.15-61.30	13.05	13.05	13.05	13.05								
3	DHU-1	5.18	5.18	5.19	5.18	239.19	595.93	593.32	0.44	2.48	-	9777	464
	61.3-61.45	11.35	11.35	11.35	11.35								
4	DHU-1	5.19	5.19	5.19	5.19	272.27	671.57	668.76	0.42	2.46	-	10989	519
	61.45-61.60	12.87	12.87	12.87	12.87								
5	DHU-1	5.17	5.17	5.17	5.17	274.17	680.53	678.49	0.30	2.47	-	12968	618
	61.60-61.85	13.06	13.06	13.06	13.06								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อภินาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



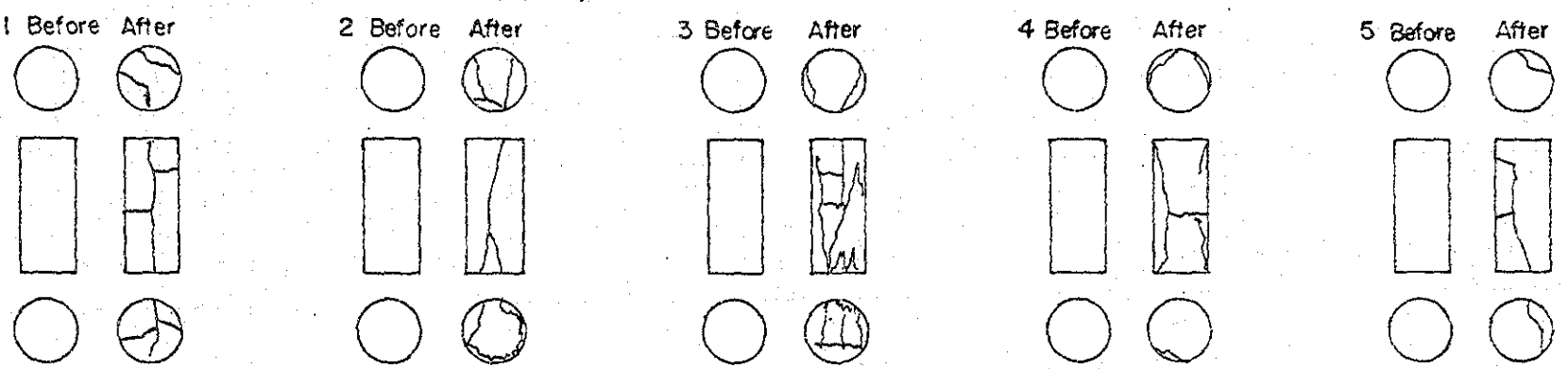
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength $Kg./cm^2$
1	DHU-1	5.17	5.17	5.18	5.17	272.70	678.01	675.91	0.31	2.48	-	11716	558
	61.85-62.0	12.99	12.99	12.99	12.99								
2	DHU-1	5.10	5.10	5.10	5.10	250.45	638.42	615.23	3.77	2.46	(627?)	5838.46	285.78
	73.2-73.35	12.26	12.27	12.27	12.26								
3	DHU-1	5.10	5.10	5.10	5.10	260.26	663.49	641.92	3.16	2.47	-	4269	209
	73.35-73.55	12.74	12.74	12.74	12.74								
4	DHU-1	5.09	5.09	5.10	5.09	256.79	664.99	642.32	3.53	2.50	-	3555	175
	74.0-74.2	12.62	12.62	12.63	12.62								
5	DHU-1	5.18	5.18	5.18	5.18	279.02	721.19	714.19	0.91	2.56	-	18988	901
	87.0-87.15	13.24	13.24	13.24	13.24								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



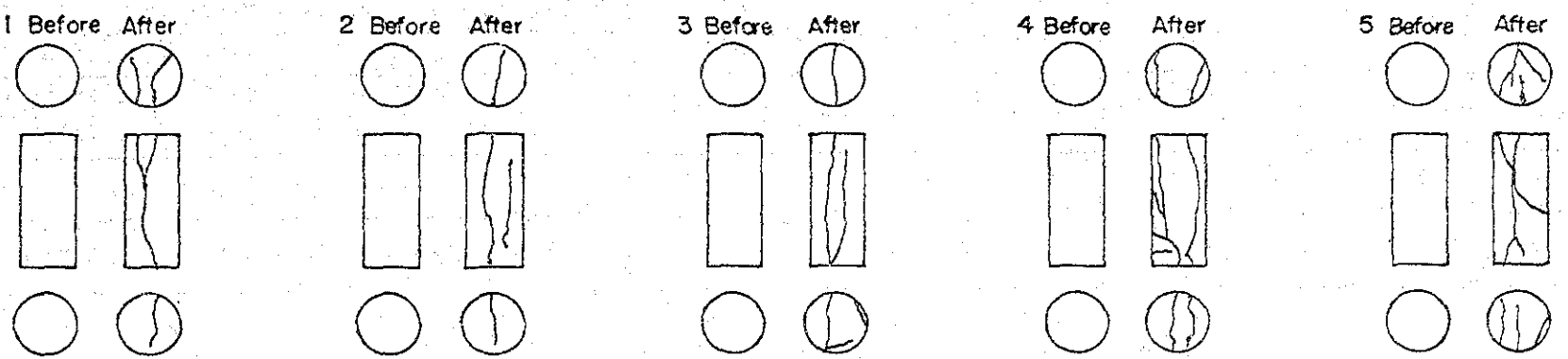
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc.)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength $_2$ Kg./cm.
1	DHU-1	5.17	5.17	5.17	5.17	273.96	710.11	703.01	1.01	2.57	-	10585	504
	87.15-87.30	13.05	13.05	13.05	13.05								
2	DHU-1	5.19	5.19	5.19	5.19	282.43	730.95	724.50	0.89	2.57	3206	24240	1146
	87.30-87.45	13.36	13.35	13.35	13.35								
3	DHT-1	5.10	5.09	5.06	5.08	240.18	622.99	603.38	3.25	2.51	-	4431	219
	75.1-75.25	11.85	11.85	11.85	11.85								
4	DHT-1	5.15	5.15	5.15	5.15	251.01	653.57	638.75	2.32	2.54	-	5746	276
	75.70-75.90	12.05	12.05	12.05	12.05								
5	DHT-1	4.46	4.45	4.45	4.45	177.77	462.54	448.76	3.07	2.52	2770	4662	300
	76.3-76.55	11.44	11.43	11.43	11.43								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LA TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



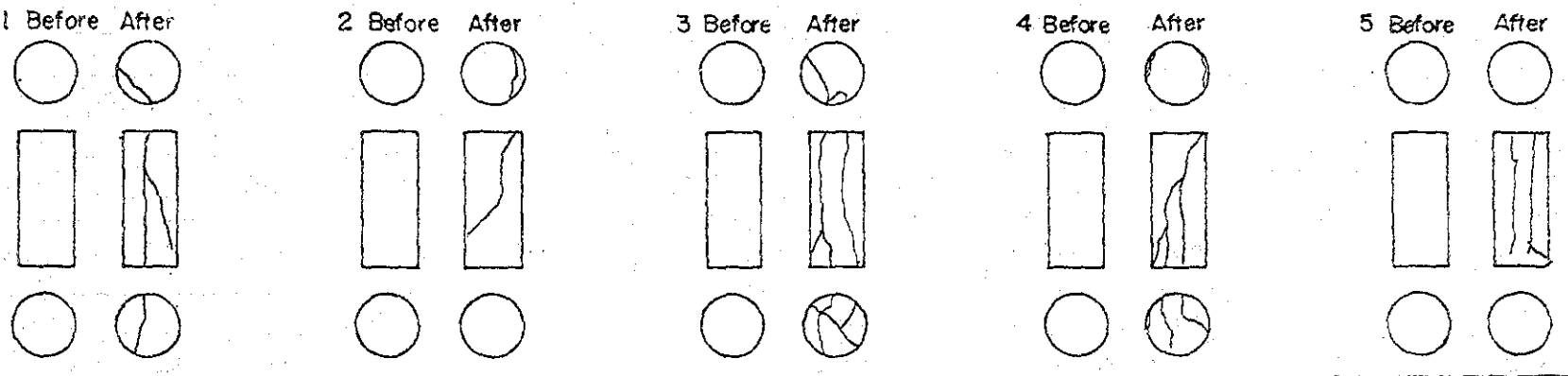
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc.)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHT-1	4.48	4.48	4.48	4.48	187.58	465.26	459.52	1.25	2.45	-	10504	666
	104.0-104.15	11.90	11.90	11.90	11.90								
2	DHT-1	4.44	4.45	4.48	4.47	204.32	504.91	499.07	1.17	2.44	-	9858	628
	104.15-104.30	13.02	13.02	13.01	13.02								
3	DHT-1	4.48	4.50	4.48	4.49	204.89	509.86	503.52	1.26	2.46	-	9211	582
	104.30-104.45	12.94	12.94	12.94	12.94								
4	DHT-1	4.48	4.49	4.50	4.49	204.89	508.56	502.23	1.26	2.45	-	12766	806
	104.45-104.60	12.94	12.94	12.95	12.94								
5	DHT-1	4.49	4.48	4.48	4.49	182.72	454.44	449.44	1.16	2.46	-	13574	858
	104.6-104.75	11.54	11.54	11.54	11.54								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



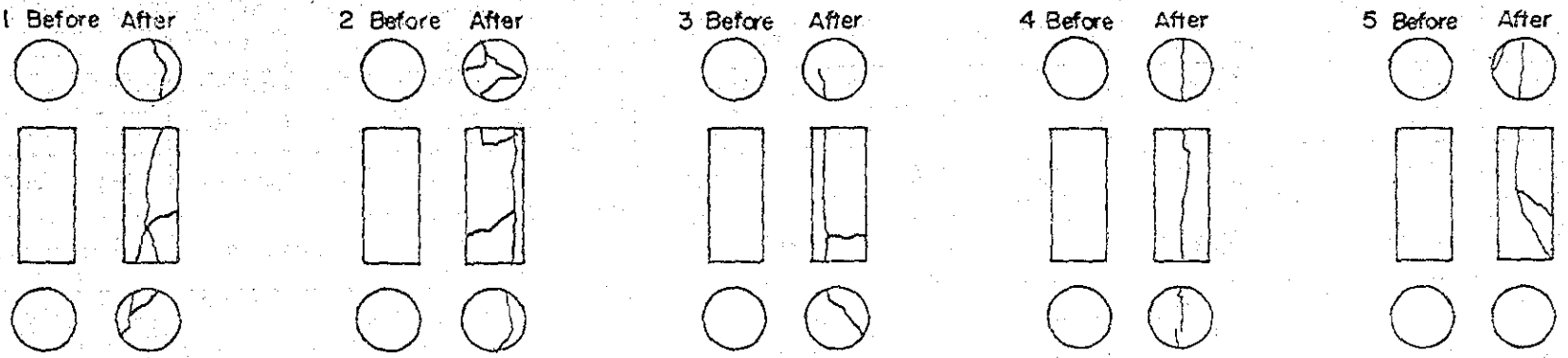
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHT-1	4.80	4.80	4.80	4.80	231.62	505.92	499.33	1.32	2.16	2672	13038.45	720.36
	104.8-104.95	12.80	12.80	12.80	12.80								
2	DHT-1	4.45	4.46	4.46	4.46	163.10	421.63	409.15	3.05	2.51	-	5076.92	325
	112.1-112.4	10.44	10.44	10.45	10.44								
3	DHT-1	4.45	4.45	4.45	4.45	203.12	532.82	519.12	2.64	2.56	-	5169.22	332
	114.3-114.5	13.07	13.06	13.06	13.06								
4	DHT-1	4.46	4.45	4.46	4.46	202.47	533.68	521.89	2.26	2.58	-	6392.30	409
	133.5-133.75	12.95	12.96	12.96	12.96								
5	DHT-1	4.46	4.46	4.46	4.46	190.76	502.26	491.26	2.24	2.58	-	5562	356
	133.75-133.95	12.21	12.22	12.22	12.21								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



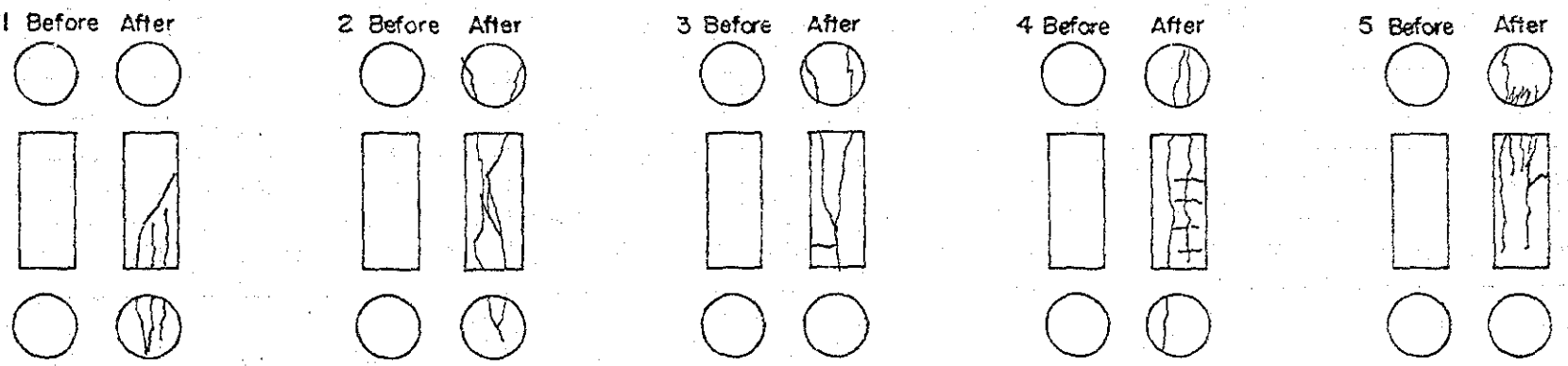
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength $Kg./cm.^2$
1	DHT-1	4.46	4.47	4.47	4.46	203.88	536.79	525.85	2.08	2.58	-	2030.77	130
	133.75-134.0	13.05	13.05	13.05	13.05								
2	DHT-1	4.47	4.47	4.47	4.47	201.66	529.54	518.29	2.17	2.57	-	7615.38	485
	134.15-134.40	12.85	12.85	12.85	12.85								
3	DHT-1	4.46	4.47	4.47	4.46	202.94	535.52	523.99	2.20	2.58	-	4015	257
	134.85-135.0	12.98	13.00	13.00	12.99								
4	DHW-1	4.50	4.50	4.50	4.50	207.87	515.14	510.34	0.94	2.46	2781	9530.76	599.42
	154-154.2	13.07	13.08	13.07	13.07								
5	DHW-1	4.53	4.53	4.51	4.52	209.88	506.21	501.69	0.90	2.39	-	10342	644
	154.20-154.40	13.08	13.08	13.08	13.08								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



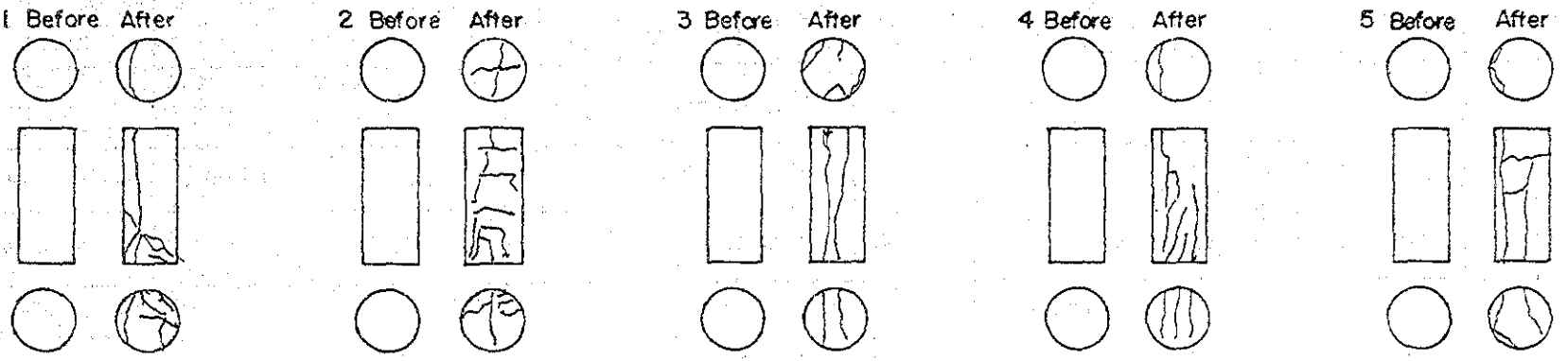
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength $Kg./cm.^2$
1	DHW-1	4.50	4.51	4.50	4.51	211.99	508.68	504.44	0.84	2.38	-	12362	774
	154.40-154.55	13.27	13.27	13.27	13.27								
2	DHW-1	4.50	4.50	4.50	4.50	207.71	521.85	515.76	1.18	2.48	-	13494	849
	154.55-154.70	13.05	13.06	13.05	13.05								
3	DHW-1	4.50	4.50	4.50	4.50	207.87	500.95	496.88	0.82	2.39	-	13251	833
	154.7-154.85	13.06	13.06	13.07	13.06								
4	DHW-1	4.50	4.50	4.50	4.50	209.46	507.13	502.86	0.85	2.40	-	9696	610
	154.85-155.0	13.18	13.17	13.17	13.17								
5	DHW-1	4.48	4.48	4.48	4.48	204.61	525.92	510.06	3.11	2.49	-	5575	354
	223.3-223.45	13.00	12.95	13.00	12.98								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



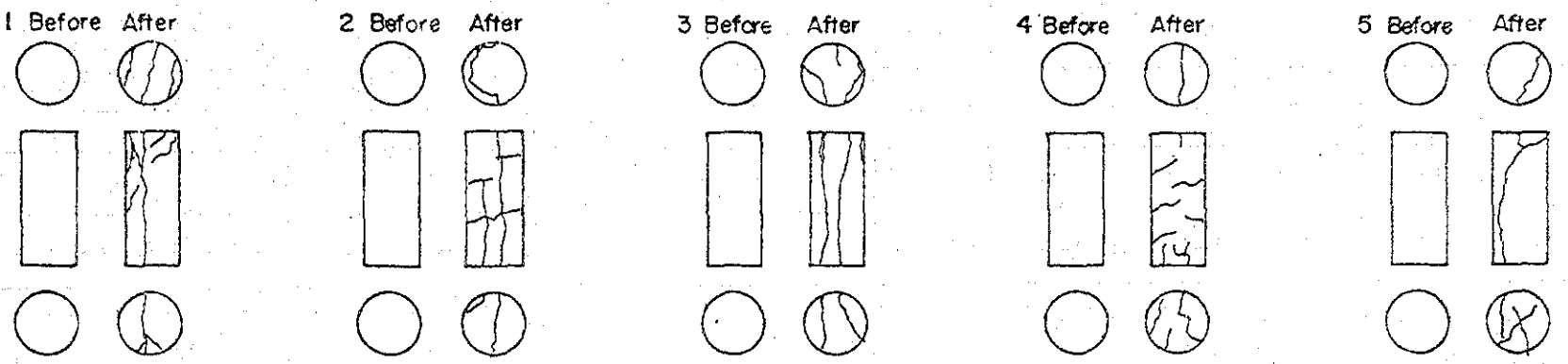
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc.)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHW-1	4.45	4.50	4.46	4.47	207.15	534.84	519.62	2.93	2.51	-	4040	257
	223.45-223.6	13.20	13.20	13.20	13.20								
2	DHW-2	4.42	4.41	4.41	4.41	205.29	533.00	520.41	2.42	2.53	-	4385	287
	72.55-72.75	13.45	13.44	13.44	13.44								
3	DHW-2	4.42	4.42	4.42	4.42	192.87	505.52	502.70	0.56	2.61	-	6923	451
	72.75-72.90	12.57	12.57	12.57	12.57								
4	DHW-2	4.75	4.75	4.75	4.75	226.11	589.42	580.37	1.56	2.57	-	9185	518
	130-130.15	12.75	12.76	12.76	12.76								
5	DHW-2	4.75	4.75	4.75	4.75	228.77	596.72	584.56	2.08	2.56	-	13009	734
	130.15-130.30	12.91	12.91	12.92	12.91								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



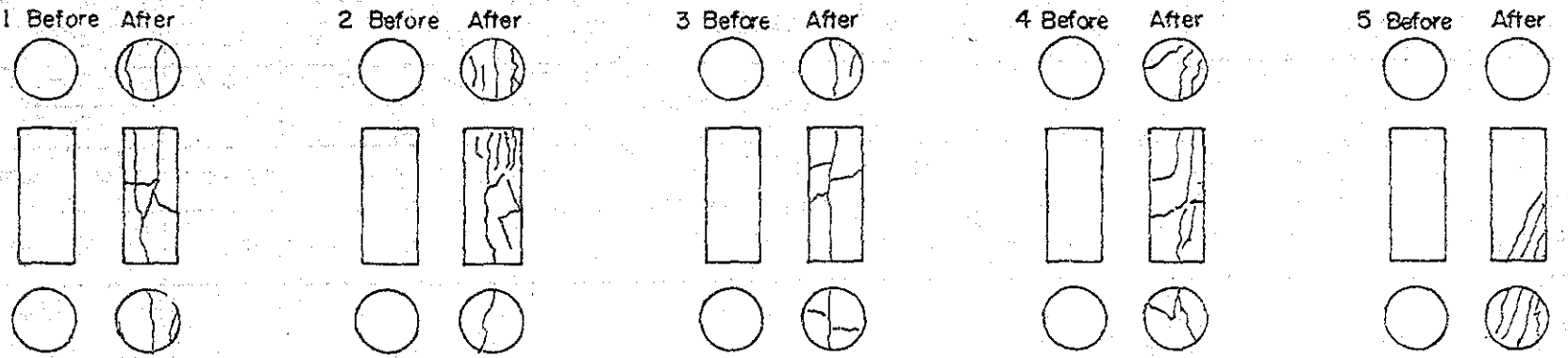
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc.)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHW-2	4.75	4.75	4.75	4.75	233.03	606.38	603.96	0.40	2.59	-	8954	505
	130.30-130.45	13.15	13.15	13.15	13.15								
2	DHW-2	4.86	4.86	4.86	4.86	219.46	549.06	539.67	1.74	2.46	-	15069.22	812
	130.65-130.85	11.83	11.83	11.83	11.83								
3	DHW-2	4.75	4.75	4.74	4.75	223.46	585.74	583.52	0.38	2.61	-	6138	346
	130.85-131	12.61	12.60	12.61	12.61								
4	DHW-2	4.76	4.76	4.76	4.76	220.48	581.12	578.75	0.41	2.62	-	8192	460
	150.15-150.30	12.39	12.40	12.39	12.39								
5	DHW-2	4.75	4.75	4.75	4.75	233.20	600.56	597.10	0.58	2.56	-	3878	219
	164.8-164.95	13.16	13.16	13.16	13.16								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



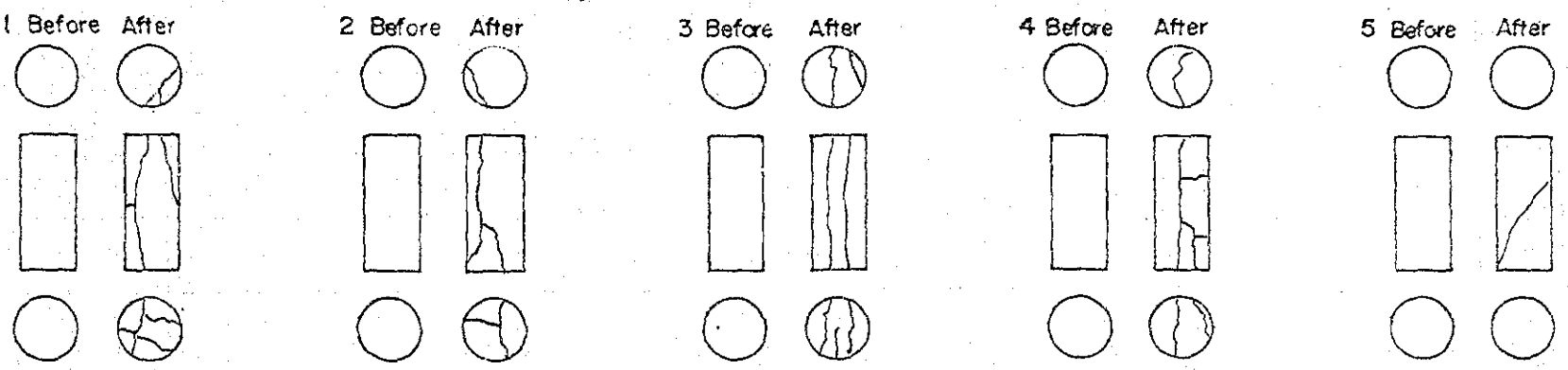
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHW-2	4.77	4.77	4.77	4.77	250.90	658.83	656.27	0.39	2.62	-	13332	746
	173.2-173.4	14.04	14.03	14.03	14.04								
2	DHW-2	4.77	4.77	4.77	4.77	246.25	645.18	643.27	0.23	2.61	-	18422	1031
	173.4-173.60	13.77	13.78	13.77	13.78								
3	DHW-2	4.77	4.77	4.77	4.77	233.56	614.12	612.71	0.23	2.62	-	17769	994
	173.60-173.85	13.07	13.07	13.06	13.07								
4	DHW-2	4.77	4.77	4.77	4.77	227.67	606.79	601.08	0.95	2.64	-	13494	755
	173.6-173.85	12.74	12.74	12.74	12.74								
5	DHW-2	4.77	4.78	4.77	4.77	234.99	616.88	610.95	0.97	2.60	3372	5999.99	335.76
	173.85-174.0	13.15	13.15	13.16	13.15								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



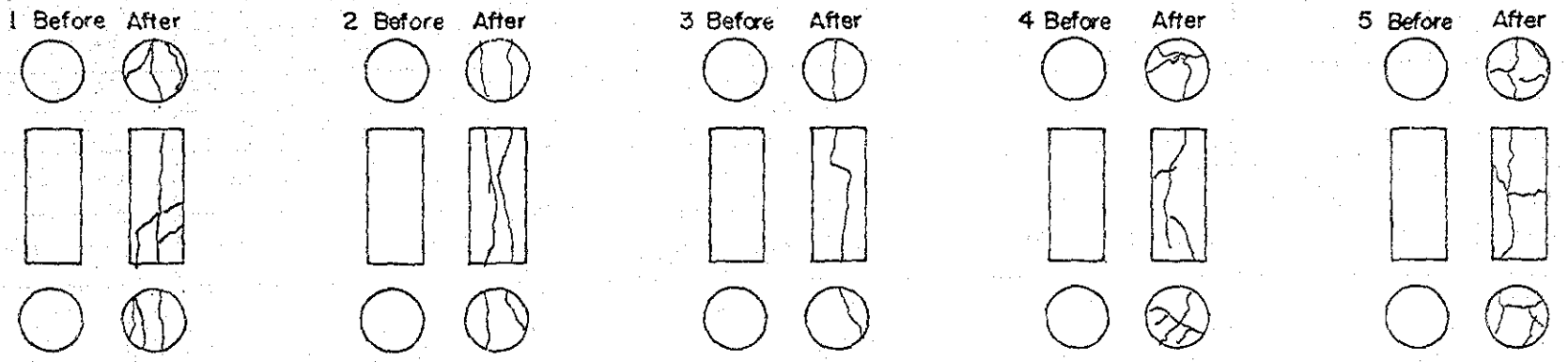
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength $Kg./cm.^2$
1	DHW-2	4.75	4.75	4.75	4.75	229.48	598.05	580.57	3.01	2.53	-	6531	369
	207.2-207.35	12.95	12.95	1.295	12.95								
2	DHW-2	4.76	4.76	4.77	4.76	229.20	594.63	576.86	3.08	2.52	2449	4384.61	246.33
	207.35-207.55	12.88	12.88	12.88	12.88								
3	DHW-2	4.78	4.78	4.78	4.78	224.31	562.45	555.95	1.17	2.48	-	11231	603
	222.0-222.15	12.50-	12.50	12.50	12.50								
4	DHW-2	4.78	4.78	4.78	4.78	250.51	632.08	624.15	1.27	2.49	-	10666	594
	222.15-222.3	13.96	13.96	13.96	13.96								
5	DHW-2	4.78	4.78	4.78	4.78	231.13	581.00	578.86	0.37	2.50	-	16726	932
	222.3-222.45	12.87	12.88	12.87	12.88								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 22/1/34 MATERIAL TESTING SECTION

Type of Rock _____ Tested by ประมวล-พิชิต-อำนาจ GEOLOGY & SOIL ENGINEERING DIVISION

Checked by ประสิทธิ์ PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



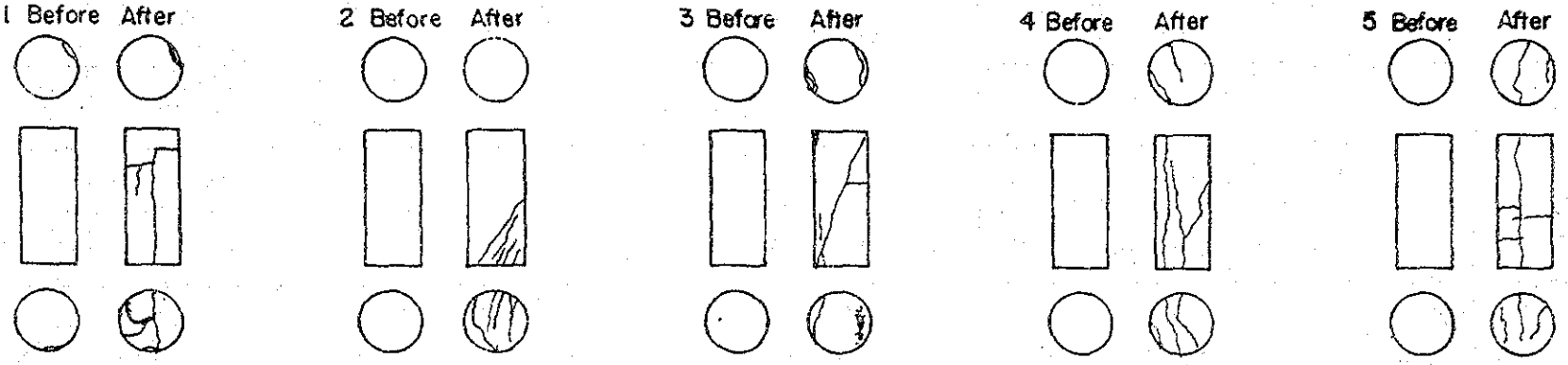
No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHW-2	4.78	4.78	4.78	4.78	239.93	603.47	602.15	0.22	2.51	-	11312	630
	222.45-222.6	13.37	13.37	13.37	13.37								
2	DHW-2	4.77	4.78	4.77	4.77	231.78	586.73	579.31	1.28	2.50	-	14382	805
	222.6-222.8	12.97	12.97	12.97	12.97								
3	DHW-2	4.77	4.77	4.77	4.77	228.20	576.90	570.85	1.06	2.50	2956	14307.68	800.65
	222.8-223.0	12.77	12.77	12.78	12.77								
4	DHW-2	4.76	4.76	4.76	4.76	232.23	613.72	603.05	1.77	2.60	-	10100	567
	236.15-236.4	13.05	13.05	13.05	13.05								
5	DHW-2	4.75	4.75	4.76	4.75	215.13	567.26	554.23	2.35	2.58	-	5930.76	335
	244.2-244.35	12.14	12.14	12.15	12.14								

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 8/11/33 MATERIAL TESTING SECTION

Type of Rock _____ Tested by SKS GEOLOGY & SOIL ENGINEERING DIVISION

Checked by PRK PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



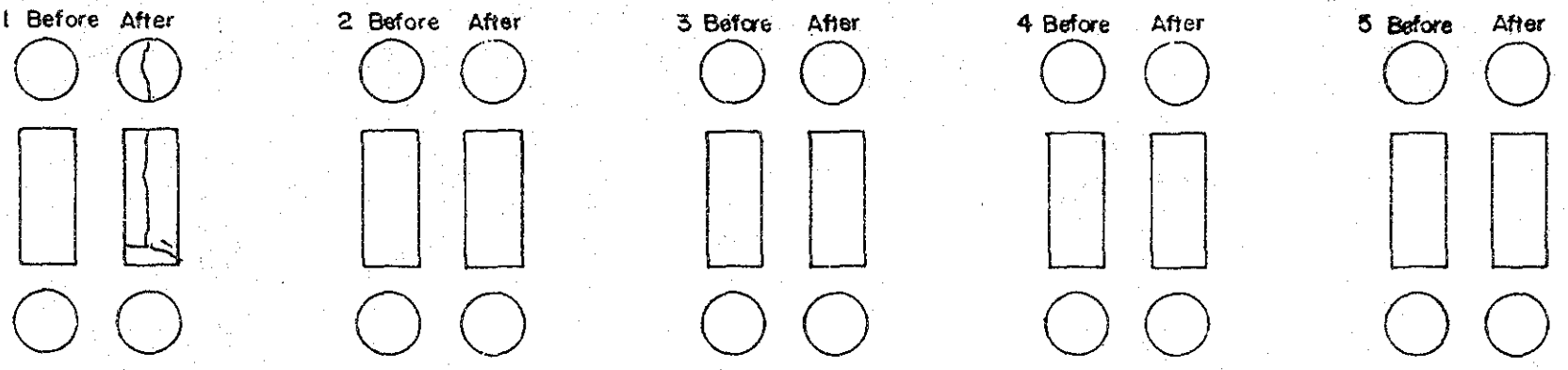
No	Bore Hole No. / Depth (m)	Diameter (cm) Height (cm.)			Average	Diameter (sq.cm) Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength $_2$ Kg./cm.
1	DHT-2	4.46	4.46	4.45	4.46	15.62	577.60	568.78	1.55	2.59		7514.4	481.08
	56.0-57.5	14.06	14.07	14.07	14.07	219.81							
2	DHT-2	4.50	4.49	4.49	4.49	15.83	536.21	530.01	1.17	2.53		18180.0	1148.45
	66.0-67.0	13.21	13.23	13.22	13.22	209.32							
3	DHT-3	5.12	5.11	5.11	5.11	20.51	679.15	669.58	1.43	2.46		14948.0	728.82
	22.0-23.0	13.27	13.27	13.27	13.27	272.15							
4	DHT-3	5.13	5.13	5.13	5.13	20.67	735.41	727.05	1.15	2.59		19311.2	934.26
	43.0-44.0	13.59	13.59	13.59	13.59	280.90							
5	DHT-3	5.12	5.13	5.12	5.12	20.59	723.28	715.62	1.07	2.59	2,300	23432	1138.3
	49.0-50.0	13.43	13.44	13.43	13.43	276.51							

UNIAXIAL COMPRESSIVE STRENGTH OF CORED ROCK SAMPLE

Project LAM TA KHONG Date 8/11/33 MATERIAL TESTING SECTION

Type of Rock _____ Tested by SDW GEOLOGY & SOIL ENGINEERING DIVISION

Checked by PRK PROJECT PLANNING AND INVESTIGATION DEPARTMENT EGAT



No	Bore Hole No. / Depth (m)	Diameter (cm.) Height (cm.)			Average	Diameter (sq.cm) Volume (cc)	Wt. Wet Rock (gm.)	Wt. Dry Rock (gm.)	Water Content %	Dry Density gm/cc.	Sound Velocity (m/sec)	Load (Kg)	Compressive Strength Kg./cm.^{2}
1	DHT-3	5.12	5.20	5.13	5.15	20.83	728.17	717.90	1.43	2.55		22412.0	1027.94
	49.0-50.0	13.52	13.52	13.52	13.52	281.63							
2													
3													
4													
5													

MATERIAL TESTING SECTION
GEOLOGY & SOIL ENG. DIV.
PROJECT PLANNING & INVEST.
DEPARTMENT.
EGAT

SPECIFIC GRAVITY, ABSORPTION

Project LAM TA KHONG Date 4/1/34

Sample Description FINE-GRAINED SANDSTONE Tested by ประมวล-พิชิต

Location DHU-1 Checked by ประสิทธิ์

Sample No. DHU-1 (61.0-62.0 m)

Data : Weight of basket (1)	2309.35	gm.
Weight of basket + dry sample (2)	6914.59	gm.
Weight of basket in water (3)	2018	gm.
Weight of basket in water + Sat. sample in water (4)	4918	gm.
Weight of basket + Sat. surface-dry sample (5)	7073.7	gm.
Result : Weight of dry sample (2) - (1) = A	4605.24	gm.
Weight of sat. surface-dry sample (5) - (1) = B	4764.35	gm.
Weight of sat. sample in water (4) - (3) = C	2900	gm.
Bulk sp. gr. $\frac{A}{B-C}$	2.47	
Bulk sp. gr. (Sat. surface-dry basis) $\frac{B}{B-C}$	2.56	
Apparent sp. gr. $\frac{A}{A-C}$	2.70	
% Absorption $\frac{B-A}{A} \times 100$	3.45	%

MATERIAL TESTING SECTION
GEOLOGY & SOIL ENG. DIV.
PROJECT PLANNING & INVEST. DEPARTMENT.
EGAT

SPECIFIC GRAVITY, ABSORPTION

Project LUM LAM TA KHONG SANDSTON WITH Date 9/10/33

Sample Description CLAYSTONE PATCH Tested by สมพร,ประมวล

Location DHU-3 Checked by ประสิทธิ์

Sample No. 36.0-36.45

Data : Weight of basket (1) 2309.97 gm.

Weight of basket+dry sample (2) 5337.68 gm.

Weight of basket in water (3) 2020 gm.

Weight of basket in water + Sat. sample in water (4) 8784 gm.

Weight of basket + Sat. surface-dry sample (5) 5469.3 gm.

Result: Weight of dry sample (2)-(1) = A 3027.71 gm.

Weight of sat. surface-dry sample (5) - (1) = B 3159.33 gm.

Weight of sat. sample in water (4)-(3) = C 1764.0 gm.

Bulk sp. gr. $\frac{A}{B-C}$ 2.17

Bulk sp. gr. (Sat. surface-dry basis) $\frac{B}{B-C}$ 2.26

Apparent sp. gr. $\frac{A}{A-C}$ 2.40

% Absorption $\frac{B-A}{A} \times 100$ 4.35 %

MATERIAL TESTING SECTION
GEOLOGY & SOIL ENG. DIV.
PROJECT PLANNING & INVEST.
DEPARTMENT.
EGAT

SPECIFIC GRAVITY, ABSORPTION

Project LAM TA KHONG Date 17/10/33

Sample Description GOOD SANDSTONE Tested by สมพร

Location DHU-4 Checked by ประสิทธิ์

Sample No. 18.0-19.0

Data :	Weight of basket (1)	2311.0	gm.
	Weight of basket + dry sample (2)	6860.6	gm.
	Weight of basket in water (3)	2021.0	gm.
	Weight of basket in water + Sat. sample in water (4)	4773.0	gm.
	Weight of basket + Sat. surface-dry sample (5)	6979.0	gm.
Result :	Weight of dry sample (2) - (1) = A	4549.6	gm.
	Weight of sat. surface-dry sample (5) - (1) = B	4668.0	gm.
	Weight of sat. sample in water (4) - (3) = C	2752.0	gm.
	Bulk sp. gr. $\frac{A}{B-C}$	2.37	
	Bulk sp. gr. (Sat. surface-dry basis) $\frac{B}{B-C}$	2.44	
	Apparent sp. gr. $\frac{A}{A-C}$	2.53	
	% Absorption $\frac{B-A}{A} \times 100$	2.60	%

MATERIAL TESTING SECTION
GEOLOGY & SOIL ENG. DIV.
PROJECT PLANNING & INVEST. DEPARTMENT.
EGAT

SPECIFIC GRAVITY, ABSORPTION

Project LAM TA KHONG Date 4/1/34

Sample Description MEDIUM-GRAINED SANDSTONE Tested by ประมวล-พิชิต

Location DHW-1 Checked by ประสิทธิ์

Sample No. DHW-1 (154-155 m)

Data : Weight of basket (1) 2309.35 gm.

Weight of basket + dry sample (2) 5399.04 gm.

Weight of basket in water (3) 2018 gm.

Weight of basket in water + Sat. sample in water (4) 3933.0 gm.

Weight of basket + Sat. surface-dry sample (5) 5506.0 gm.

Result: Weight of dry sample (2) - (1) = A 3089.69 gm.

Weight of sat. surface-dry sample (5) - (1) = B 3196.65 gm.

Weight of sat. sample in water (4) - (3) = C 1915 gm.

Bulk sp. gr. $\frac{A}{B-C}$ 2.41

Bulk sp. gr. (Sat. surface-dry basis) $\frac{B}{B-C}$ 2.49

Apparent sp. gr. $\frac{A}{A-C}$ 2.63

% Absorption $\frac{B-A}{A} \times 100$ 3.46 %

MATERIAL TESTING SECTION
GEOLOGY & SOIL ENG. DIV.
PROJECT PLANNING & INVEST.
DEPARTMENT.
EGAT

SPECIFIC GRAVITY, ABSORPTION

Project LAM TA KHONG Date 4/1/34

Sample Description FINE-GRAINED SANDSTONE Tested by ประมวล-พิชิต

Location DHW-2 Checked by ประสิทธิ์

Sample No. DHW-2 (222-223 m)

Data :	Weight of basket (1)	2309.35	gm.
	Weight of basket + dry sample (2)	5829.06	gm.
	Weight of basket in water (3)	2018	gm.
	Weight of basket in water + Sat. sample in water (4)	4227	gm.
	Weight of basket + Sat. surface-dry sample (5)	5936.7	gm.
Result :	Weight of dry sample (2) - (1) = A	3519.71	gm.
	Weight of sat. surface-dry sample (5) - (1) = B	3627.35	gm.
	Weight of sat. sample in water (4) - (3) = C	2209	gm.
	Bulk sp. gr. $\frac{A}{B-C}$	2.49	
	Bulk sp. gr. (Sat. surface-dry basis) $\frac{B}{B-C}$	2.56	
	Apparent sp. gr. $\frac{A}{A-C}$	2.69	
	% Absorption $\frac{B-A}{A} \times 100$	3.06	%

MATERIAL TESTING SECTION
GEOLOGY & SOIL ENG. DIV.
PROJECT PLANNING & INVEST. DEPARTMENT.
EGAT

SPECIFIC GRAVITY, ABSORPTION

Project LAM TA KHONG Date 4/1/34

Sample Description FINE-GRAINED SANDSTONE Tested by ประมวล-พิชิต

Location DHT-1 Checked by ประสิทธิ์

Sample No. DHT-1 (104.8-104.95 m)

Data : Weight of basket (1) 2309.35 gm.

Weight of basket + dry sample (2) 5257.64 gm.

Weight of basket in water (3) 2018 gm.

Weight of bosket in water + Sat. sample in water (4) 3868 gm.

Weight of basket + Sat. surface-dry sample (5) 5356.2 gm.

Result: Weight of dry sample (2) - (1) = A 2948.29 gm.

Weight of sat. surface-dry sample (5) - (1) = B 3046.85 gm.

Weight of sat. sample in water (4) - (3) = C 1850 gm.

Bulk sp. gr. $\frac{A}{B-C}$ 2.46

Bulk sp. gr. (Sat. surface-dry basis) $\frac{B}{B-C}$ 2.55

Apparent sp. gr. $\frac{A}{A-C}$ 2.68

% Absorption $\frac{B-A}{A} \times 100$ 3.34 %

MATERIAL TESTING SECTION
GEOLOGY & SOIL ENG. DIV.
PROJECT PLANNING & INVEST. DEPARTMENT.
EGAT

SPECIFIC GRAVITY, ABSORPTION

Project LAM TA KHONG Date 17/10/33

Sample Description SANDSTONE Tested by สมพร

Location DHT-2 Checked by ประสิทธิ์

Sample No. 66.00-67.00

Data : Weight of basket (1) 2311.0 gm.

Weight of basket + dry sample (2) 5664.3 gm.

Weight of basket in water (3) 2021.0 gm.

Weight of basket in water + Sat. sample in water (4) 4128.0 gm.

Weight of basket + Sat. surface-dry sample (5) 5738.0 gm.

Result : Weight of dry sample (2) - (1) = A 3353.3 gm.

Weight of sat. surface-dry sample (5) - (1) = B 3427.0 gm.

Weight of sat. sample in water (4) - (3) = C 2107.0 gm.

Bulk sp. gr. $\frac{A}{B-C}$ 2.54

Bulk sp. gr. (Sat. surface-dry basis) $\frac{B}{B-C}$ 2.60

Apparent sp. gr. $\frac{A}{A-C}$ 2.69

% Absorption $\frac{B-A}{A} \times 100$ 2.20 %

MATERIAL TESTING SECTION
GEOLOGY & SOIL ENG. DIV.
PROJECT PLANNING & INVEST. DEPARTMENT.
EGAT

SPECIFIC GRAVITY, ABSORPTION

Project LAM TA KHONG Date 17/10/33

Sample Description SILTY SANDSTONE Tested by สมพร

Location DHT-3 Checked by ประสิทธิ์

Sample No. 49.0-50.0

Data : Weight of basket (1) 2311.0 gm.

Weight of basket + dry sample (2) 6924.5 gm.

Weight of basket in water (3) 2021.0 gm.

Weight of basket in water + Sat. sample in water (4) 4928.0 gm.

Weight of basket + Sat. surface-dry sample (5) 6995.0 gm.

Result: Weight of dry sample (2) - (1) = A 4613.5 gm.

Weight of sat. surface-dry sample (5) - (1) = B 4684.0 gm.

Weight of sat. sample in water (4) - (3) = C 2967.0 gm.

Bulk sp. gr. $\frac{A}{B-C}$ 2.60

Bulk sp. gr. (Sat. surface-dry basis) $\frac{B}{B-C}$ 2.64

Apparent sp. gr. $\frac{A}{A-C}$ 2.70

% Absorption $\frac{B-A}{A} \times 100$ 1.53 %

MATERIAL TESTING SECTION
GEOLOGY & SOIL ENG. DIV.
PROJECT PLANNING & INVEST. DEPARTMENT.
EGAT

SPECIFIC GRAVITY, ABSORPTION

Project LAM TA KHONG Date 17/10/33

Sample Description SILTSTONE INTERBEDED SANDSTONE Tested by สมพร

Location DHT-3 Checked by ประสิทธิ์

Sample No. 43.0-44.0

Data : Weight of basket (1) 2311.0 gm.

Weight of basket + dry sample (2) 6804 gm.

Weight of basket in water (3) 2021.0 gm.

Weight of basket in water + Sat. sample in water (4) 4860 gm.

Weight of basket + Sat. surface-dry sample (5) 6897 gm.

Result : Weight of dry sample (2) - (1) = A 4493 gm.

Weight of sat. surface-dry sample (5) - (1) = B 4586.0 gm.

Weight of sat. sample in water (4) - (3) = C 2839.0 gm.

Bulk sp. gr. $\frac{A}{B-C}$ 2.57

Bulk sp. gr. (Sat. surface-dry basis) $\frac{B}{B-C}$ 2.63

Apparent sp. gr. $\frac{A}{A-C}$ 2.72

% Absorption $\frac{B-A}{A} \times 100$ 2.07 %

A-7 TRIAXIAL TEST DATA OF UNDISTURBED SAMPLES

TRIAXIAL TEST RESULT

Material Testing Section, Geology and Soil Engineering Division, Survey and Ecology Department, EGAT.
Project LAM TA KONG TP or BH PU-1 ,Depth = 4.80 m. ,Specimen No. = 1
Type of Specimen ,Strain rate (mm./min) = 0.1 ,Type of Test : CIU

Init.Heigh(cm.) = 20.35 ,Init.Diameter(cm) = 10.35 ,Init.Area (sq.cm.) = 84.134 VO= 1712.12
Cell Pressure = 55.00 psi., = 3.87 kg/sq.cm. ,Init.Pore Pressure rdg. = 29.400 psi. 2.07 kg/sq.cm
Back Pressure = 30.00 psi.,
Eff.Conf.Pressure = 25.60 psi., = 1.800 kg/sq.cm. ,Proving Ring Constant = 0.8259 kg/div.

Dry Density = 1.920 ton/cu.m at Water Content = 14.49 % by Comp. Stress = kgf/sq.cm
"B" Value= 98.69

Volume Change = 40.00 cc. Hc.= 20.19 cm. Vc= 1672.12 cc. Ac= 82.81 sq.cm
Preration date : 7/11/33 Saturation date : 7/11/33
Consolidation date: 8/11/33 Shearing date : 9/11/33

Deform. 0.01 mm.	Load Dial Rdg.(div)	Pore(u) *10E-1 psi	Strain %	Cor. Area sq.cm	Dev.Stress kg/sq.cm	Excess u kg/sq.cm	Nor. DS	A-Para	P1 Eff. kg/sq.cm	P3 Eff. kg/sq.cm	Eff.P KG/SQ.CM	Eff.Q KG/SQ.CM
0.0	0.0	294	0.00	82.81	0.00	0.00	0.00	0.00	1.80	1.80	1.80	0.00
5.0	6.0	295	0.02	82.83	0.06	0.01	0.03	0.12	1.85	1.79	1.82	0.03
15.0	9.0	297	0.07	82.87	0.09	0.02	0.05	0.24	1.87	1.78	1.82	0.04
25.0	13.0	299	0.12	82.92	0.13	0.04	0.07	0.27	1.89	1.76	1.8[illegible]	0.06
40.0	17.0	301	0.20	82.98	0.17	0.05	0.09	0.29	1.92	1.75	1.84	0.08
55.0	65.0	327	0.27	83.04	0.65	0.23	0.36	0.36	2.21	1.57	1.89	0.32
70.0	95.0	343	0.35	83.10	0.94	0.34	0.52	0.36	2.40	1.46	1.[illegible]3	0.47
90.0	116.0	357	0.45	83.18	1.25	0.44	0.70	0.35	2.61	1.36	1.9[illegible]	0.63
110.0	156.0	368	0.54	83.27	1.55	0.52	0.86	0.34	2.83	1.28	2.05	0.77
130.0	181.0	375	0.64	83.35	1.79	0.57	1.00	0.32	3.02	1.23	2.13	0.90
150.0	207.0	380	0.74	83.43	2.05	0.60	1.14	0.30	3.24	1.20	2.22	1.02
170.0	233.0	383	0.84	83.52	2.30	0.63	1.28	0.27	3.48	1.17	2.33	1.15
180.0	245.0	384	0.89	83.56	2.42	0.63	1.35	0.26	3.59	1.17	2.3[illegible]	1.21
200.0	270.0	384	0.99	83.64	2.67	0.63	1.48	0.24	3.83	1.17	2.5[illegible]	1.32
220.0	296.0	384	1.09	83.73	2.92	0.63	1.62	0.22	4.09	1.17	2.63	1.46
240.0	317.0	382	1.19	83.81	3.12	0.62	1.74	0.20	4.31	1.18	2.7[illegible]	1.56
260.0	337.0	379	1.29	83.89	3.32	0.60	1.84	0.18	4.52	1.20	2.86	1.66
300.0	368.0	372	1.49	84.06	3.62	0.55	2.01	0.15	4.87	1.25	3.06	1.81
350.0	406.0	361	1.73	84.27	3.98	0.47	2.21	0.12	5.31	1.33	3.32	1.99
400.0	427.0	352	1.98	84.49	4.17	0.41	2.32	0.10	5.57	1.39	3.48	2.09
500.0	469.0	335	2.48	84.92	4.56	0.29	2.53	0.06	6.07	1.51	3.79	2.28
600.0	503.0	316	2.97	85.35	4.87	0.15	2.70	0.03	6.51	1.65	4.08	2.43
700.0	532.0	299	3.47	85.79	5.12	0.04	2.85	0.01	6.89	1.76	4.33	2.56
900.0	580.0	268	4.46	86.68	5.53	-0.18	3.07	-0.03	7.51	1.98	4.75	2.76
1100.0	620.0	241	5.45	87.58	5.85	-0.37	3.25	-0.06	8.02	2.17	5.10	2.92
1300.0	652.0	218	6.44	88.51	6.08	-0.53	3.38	-0.09	8.42	2.33	5.38	3.04
1500.0	680.0	196	7.43	89.46	6.28	-0.69	3.49	-0.11	8.77	2.49	5.63	3.14
1700.0	701.0	176	8.42	90.43	6.40	-0.83	3.56	-0.13	9.03	2.63	5.83	3.20
2000.0	725.0	152	9.91	91.92	6.51	-1.00	3.62	-0.15	9.31	2.80	6.06	3.26
2300.0	742.0	133	11.39	93.46	6.56	-1.13	3.64	-0.17	9.49	2.93	6.21	3.28
2500.0	753.0	123	12.38	94.52	6.58	-1.20	3.66	-0.18	9.58	3.00	6.29	3.29
2700.0	764.0	113	13.37	95.60	6.60	-1.27	3.67	-0.19	9.67	3.07	6.37	3.30
3000.0	781.0	101	14.86	97.26	6.63	-1.36	3.68	-0.20	9.79	3.16	6.47	3.32
3200.0	791.0	92	15.85	98.41	6.64	-1.42	3.69	-0.21	9.86	3.22	6.54	3.32
3600.0	805.0	75	17.83	100.78	6.60	-1.54	3.67	-0.23	9.94	3.34	6.64	3.30
3900.0	812.0	63	19.32	102.64	6.53	-1.62	3.63	-0.25	9.96	3.42	6.69	3.27
4200.0	814.0	55	20.80	104.56	6.43	-1.68	3.57	-0.26	9.91	3.48	6.70	3.21
4500.0	802.0	59	22.29	106.56	6.22	-1.65	3.45	-0.27	9.67	3.45	6.56	3.11
5000.0	786.0	45	24.76	110.07	5.90	-1.75	3.28	-0.30	9.45	3.55	6.50	2.95

TRIAXIAL TEST RESULT

Material Testing Section, Geology and Soil Engigeering Division, Survey and Ecology Department, EGAT.
Project LAM TA KONG TP or BH PU-1 ,Depth = 4.80 m. ,Specimen No. = 2
Type of Specimen ,Strain rate (mm./min) = 0.1 ,Type of Test : CIU

Init.Heigh(cm.) = 20.35 ,Init.Diameter(cm) = 10.35 ,Init.Area (sq.cm.) = 84.134 V0= 1712.12
Cell Pressure = 80.00 psi., = 5.63 kg/sq.cm. ,Init.Pore Pressure rdg. = 29.700 psi. 2.09 kg/sq.cm
Back Pressure = 30.00 psi.,
Eff.Conf.Pressure = 50.30 psi., = 3.537 kg/sq.cm. ,Proving Ring Constant = 0.4232 kg/div.

Dry Density = 1.894 ton/cu.m at Water Content = 14.69 % by Comp. Stress = kgf/sq.cm
"B" Value= 98.69

Volume Change = 66.00 cc. Hc.= 20.09 cm. Vc= 1646.12 cc. Ac= 81.94 sq.cm
Preration date : 7/11/33 Saturation date : 7/11/33
Consolidation date: 8/11/33 Shearing date : 9/11/33

Deform. 0.01 mm.	Load Dial Rdg.(div)	Pore(u) X10E-1 psi	Strain %	Cor. Area sq.cm	Dev.Stress kg/sq.cm	Excess u kg/sq.cm	Nor. DS	A-Para	P1 Eff. kg/sq.cm	P3 Eff. kg/sq.cm	Eff.P KG/SQ.CM	Eff.Q KG/SQ.CM
0.0	0.0	297	0.00	81.94	0.00	0.00	0.00	0.00	3.54	3.54	3.54	0.00
5.0	40.0	297	0.02	81.96	0.21	0.00	0.06	0.00	3.74	3.54	3.64	0.10
15.0	159.0	324	0.07	82.00	0.82	0.19	0.23	0.23	4.17	3.35	3.76	0.41
25.0	230.0	345	0.12	82.05	1.19	0.34	0.34	0.28	4.39	3.20	3.79	0.59
40.0	309.0	369	0.20	82.11	1.59	0.51	0.45	0.32	4.62	3.03	3.83	0.80
55.0	375.0	389	0.27	82.17	1.93	0.65	0.55	0.33	4.82	2.89	3.86	0.97
70.0	434.0	404	0.35	82.23	2.23	0.75	0.63	0.34	5.02	2.78	3.90	1.12
90.0	504.0	420	0.45	82.31	2.59	0.86	0.73	0.33	5.26	2.67	3.97	1.30
110.0	565.0	431	0.55	82.39	2.90	0.94	0.82	0.32	5.50	2.59	4.05	1.45
130.0	620.0	440	0.65	82.48	3.18	1.01	0.90	0.32	5.71	2.53	4.12	1.59
150.0	673.0	447	0.75	82.56	3.45	1.05	0.93	0.31	5.93	2.48	4.21	1.72
170.0	725.0	453	0.85	82.64	3.71	1.10	1.05	0.30	6.15	2.44	4.30	1.86
180.0	745.0	454	0.90	82.68	3.81	1.10	1.08	0.29	6.25	2.43	4.34	1.91
200.0	788.0	457	1.00	82.77	4.03	1.12	1.14	0.28	6.44	2.41	4.43	2.01
220.0	830.0	458	1.10	82.85	4.24	1.13	1.20	0.27	6.64	2.40	4.52	2.12
240.0	867.0	459	1.19	82.93	4.42	1.14	1.25	0.26	6.82	2.40	4.61	2.21
260.0	905.0	460	1.29	83.02	4.61	1.15	1.30	0.25	7.00	2.39	4.70	2.31
300.0	968.0	457	1.49	83.19	4.92	1.12	1.39	0.23	7.34	2.41	4.87	2.46
350.0	1036.0	451	1.74	83.40	5.26	1.08	1.49	0.21	7.71	2.45	5.08	2.63
400.0	1092.0	444	1.99	83.61	5.53	1.03	1.56	0.19	8.03	2.50	5.27	2.76
500.0	1185.0	427	2.49	84.04	5.97	0.91	1.69	0.15	8.59	2.62	5.61	2.98
600.0	1236.0	410	2.99	84.47	6.19	0.79	1.75	0.13	8.93	2.74	5.84	3.10
700.0	1268.0	393	3.48	84.90	6.32	0.67	1.79	0.11	9.18	2.86	6.02	3.16
900.0	1302.0	366	4.48	85.79	6.42	0.49	1.82	0.08	9.47	3.05	6.26	3.21
1100.0	1306.0	346	5.48	86.69	6.38	0.34	1.80	0.05	9.57	3.19	6.38	3.19
1300.0	1301.0	332	6.47	87.61	6.28	0.25	1.78	0.04	9.57	3.29	6.43	3.14
1500.0	1274.0	319	7.47	88.56	6.09	0.15	1.72	0.03	9.47	3.38	6.43	3.04
1700.0	1252.0	310	8.46	89.52	5.92	0.09	1.67	0.02	9.36	3.45	6.40	2.96
2000.0	1232.0	298	9.96	91.00	5.73	0.01	1.62	0.00	9.26	3.53	6.39	2.86
2300.0	1230.0	286	11.45	92.54	5.63	-0.08	1.59	-0.01	9.24	3.61	6.43	2.81
2500.0	1230.0	278	12.44	93.59	5.56	-0.13	1.57	-0.02	9.23	3.67	6.45	2.78
2700.0	1234.0	273	13.44	94.67	5.52	-0.17	1.56	-0.03	9.22	3.71	6.46	2.76
3000.0	1250.0	261	14.93	96.33	5.49	-0.25	1.55	-0.05	9.28	3.79	6.54	2.75
3200.0	1271.0	253	15.93	97.47	5.52	-0.31	1.56	-0.06	9.36	3.85	6.61	2.76
3600.0	1322.0	238	17.92	99.83	5.60	-0.41	1.58	-0.07	9.56	3.95	6.75	2.80
3900.0	1371.0	227	19.41	101.68	5.71	-0.49	1.61	-0.09	9.73	4.03	6.88	2.85
4200.0	1417.0	214	20.91	103.60	5.79	-0.58	1.64	-0.10	9.91	4.12	7.01	2.89
4500.0	1462.0	204	22.40	105.60	5.86	-0.65	1.66	-0.11	10.05	4.19	7.12	2.93

TRIAXIAL TEST RESULT

Material Testing Section, Geology and Soil Engineering Division, Survey and Ecology Department, EGAT.
Project LAM TA KONG TP or BH PU-1 ,Depth = 4.80 m. ,Specimen No. = 3
Type of Specimen ,Strain rate (mm./min) = 0.1 ,Type of Test : CIU

Init.Heigh(cm.) = 20.35 ,Init.Diameter(cm) = 10.40 ,Init.Area (sq.cm.) = 84.949 VO= 1728.71
Cell Pressure = 105.00 psi., = 7.38 kg/sq.cm. ,Init.Pore Pressure rdg. = 29.500 psi. 2.07 kg/sq.cm
Back Pressure = 30.00 psi.,
Eff.Conf.Pressure = 75.50 psi., = 5.308 kg/sq.cm. ,Proving Ring Constant = 1.8857 kg/div.

Dry Density = 1.893 ton/cu.m at Water Content = 14.67 % by Comp. Stress = kgf/sq.cm
"B" Value= 96.79

Volume Change = 84.00 cc. Hc.= 20.02 cm. Vc= 1644.71 cc. Ac= 82.15 sq.cm
Preration date : 7/11/33 Saturation date : 7/11/33
Consolidation date: 8/11/33 Shearing date : 9/11/33

Deform. 0.01 mm.	Load Dial Rdg.(div)	Pore(u) *10E-1 psi	Strain %	Cor. Area sq.cm	Dev.Stress kg/sq.cm	Excess u kg/sq.cm	Nor. DS	A-Para	P1 Eff. kg/sq.cm	P3 Eff. kg/sq.cm	Eff.P KG/SQ.CM	Eff.Q KG/SQ.CM
0.0	0.0	295	0.00	82.15	0.00	0.00	0.00	0.00	5.31	5.31	5.31	0.00
5.0	4.0	301	0.02	82.17	0.09	0.04	0.02	0.46	5.36	5.27	5.31	0.05
15.0	9.0	308	0.07	82.21	0.21	0.09	0.04	0.44	5.42	5.22	5.32	0.10
25.0	11.0	313	0.12	82.25	0.25	0.14	0.05	0.56	5.42	5.17	5.29	0.13
40.0	14.0	321	0.20	82.32	0.32	0.18	0.06	0.57	5.45	5.13	5.29	0.16
55.0	16.0	327	0.27	82.38	0.37	0.22	0.07	0.61	5.45	5.08	5.27	0.18
70.0	23.0	338	0.35	82.44	0.53	0.30	0.10	0.57	5.53	5.01	5.27	0.26
90.0	27.0	346	0.45	82.52	0.62	0.36	0.12	0.58	5.57	4.95	5.26	0.31
110.0	28.0	350	0.55	82.61	0.64	0.39	0.12	0.60	5.56	4.92	5.24	0.32
130.0	76.0	410	0.65	82.69	1.73	0.81	0.33	0.47	6.23	4.50	5.37	0.87
150.0	126.0	469	0.75	82.77	2.87	1.22	0.54	0.43	6.96	4.08	5.52	1.44
170.0	160.0	501	0.85	82.86	3.64	1.45	0.69	0.40	7.50	3.86	5.68	1.82
180.0	175.0	514	0.90	82.90	3.98	1.54	0.75	0.39	7.75	3.77	5.76	1.99
200.0	202.0	534	1.00	82.98	4.59	1.68	0.86	0.37	8.22	3.63	5.92	2.30
220.0	228.0	551	1.10	83.06	5.18	1.80	0.98	0.35	8.68	3.51	6.10	2.59
240.0	249.0	559	1.20	83.15	5.65	1.86	1.06	0.33	9.10	3.45	6.28	2.82
260.0	268.0	565	1.30	83.23	6.07	1.90	1.14	0.31	9.48	3.41	6.45	3.04
300.0	301.0	572	1.50	83.40	6.81	1.95	1.28	0.29	10.17	3.36	6.76	3.40
350.0	331.0	573	1.75	83.61	7.46	1.95	1.41	0.26	10.82	3.35	7.09	3.73
400.0	355.0	568	2.00	83.83	7.99	1.92	1.50	0.24	11.37	3.39	7.38	3.99
500.0	389.0	556	2.50	84.26	8.71	1.84	1.64	0.21	12.18	3.47	7.83	4.35
600.0	405.0	537	3.00	84.69	9.02	1.70	1.70	0.19	12.62	3.61	8.12	4.51
700.0	424.0	515	3.50	85.13	9.39	1.55	1.77	0.16	13.15	3.76	8.46	4.70
900.0	451.0	466	4.50	86.02	9.89	1.20	1.86	0.12	13.93	4.11	9.05	4.94
1100.0	469.0	428	5.49	86.93	10.17	0.94	1.92	0.09	14.55	4.37	9.46	5.09
1300.0	479.0	391	6.49	87.86	10.28	0.67	1.94	0.07	14.91	4.63	9.77	5.14
1500.0	478.0	361	7.49	88.81	10.15	0.46	1.91	0.05	14.99	4.84	9.92	5.07
1700.0	475.0	341	8.49	89.77	9.98	0.32	1.88	0.03	14.96	4.98	9.97	4.99
2000.0	472.0	320	9.99	91.27	9.75	0.18	1.84	0.02	14.88	5.13	10.01	4.88
2300.0	465.0	305	11.49	92.81	9.45	0.07	1.78	0.01	14.69	5.24	9.96	4.72
2500.0	459.0	296	12.49	93.87	9.22	0.01	1.74	0.00	14.52	5.30	9.91	4.61
2700.0	456.0	288	13.49	94.96	9.06	-0.05	1.71	-0.01	14.41	5.36	9.89	4.53
3000.0	453.0	273	14.98	96.63	8.84	-0.15	1.67	-0.02	14.30	5.46	9.88	4.42
3200.0	452.0	266	15.98	97.78	8.72	-0.20	1.64	-0.02	14.23	5.51	9.87	4.36
3600.0	451.0	250	17.98	100.16	8.49	-0.32	1.60	-0.04	14.12	5.62	9.87	4.25
3900.0	452.0	238	19.48	102.03	8.35	-0.40	1.57	-0.05	14.06	5.71	9.89	4.18
4200.0	453.0	233	20.98	103.96	8.22	-0.44	1.55	-0.05	13.96	5.74	9.85	4.11
4500.0	458.0	224	22.48	105.97	8.15	-0.50	1.54	-0.06	13.96	5.81	9.88	4.07

TRIAXIAL TEST RESULT

Material Testing Section, Geology and Soil Engineering Division, Survey and Ecology Department, EGAT.
Project LAM TA KONG TP or BH PU-1 ,Depth = 4.80 m. ,Specimen No. = 4
Type of Specimen ,Strain rate (mm./min) = 0.1 ,Type of Test : CIU

Init.Heigh(cm.) = 20.35 ,Init.Diameter(cm) = 10.45 ,Init.Area (sq.cm.) = 85.767 VO= 1745.37
Cell Pressure = 130.00 psi., = 9.14 kg/sq.cm. ,Init.Pore Pressure rdg. = 31.500 psi. 2.22 kg/sq.cm
Back Pressure = 30.00 psi.,
Eff.Conf.Pressure = 98.50 psi., = 6.925 kg/sq.cm. ,Proving Ring Constant = 1.0700 kg/div.

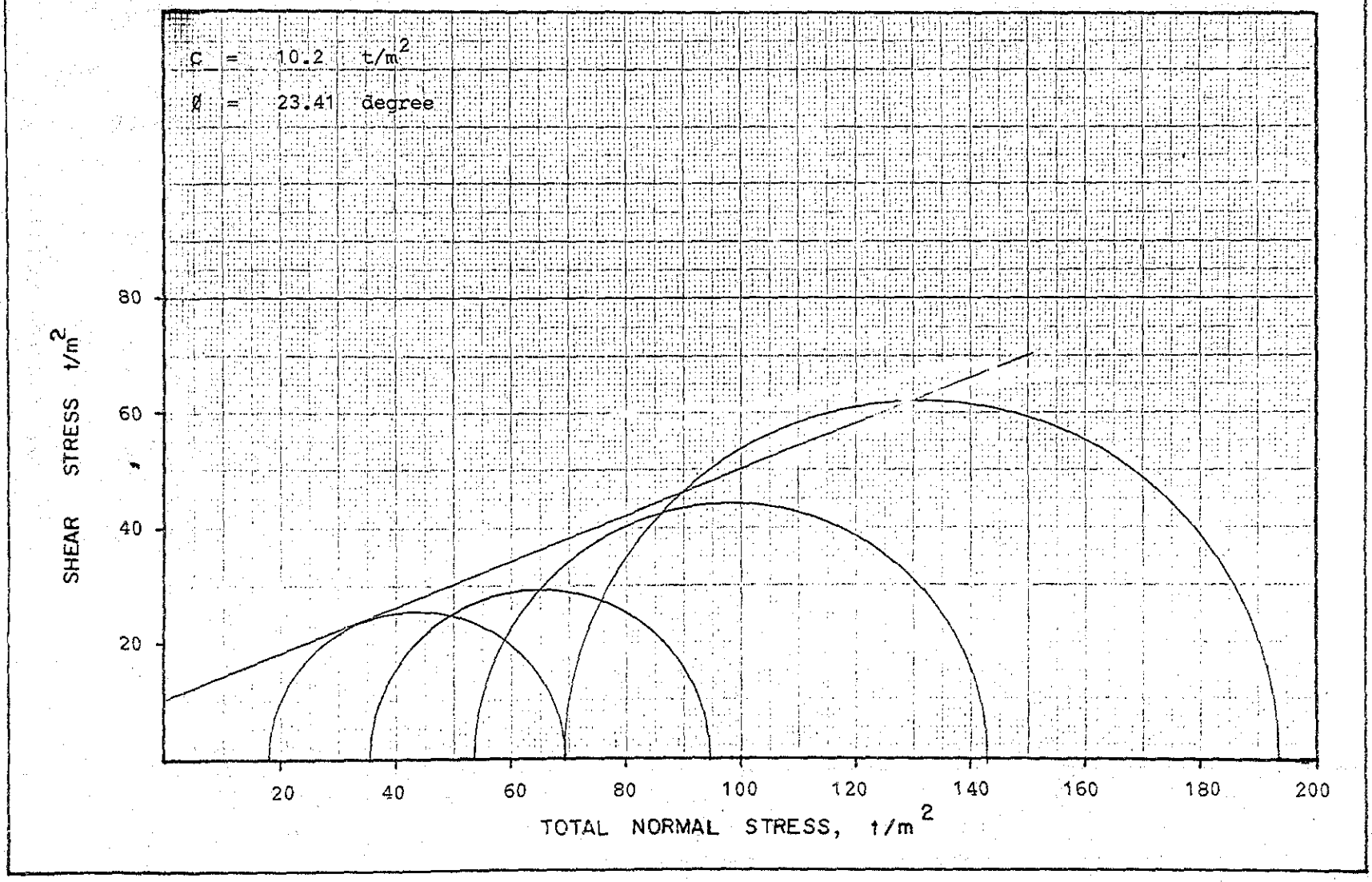
Dry Density = 1.880 ton/cu.m at Water Content = 14.10 % by Comp. Stress = kgf/sq.cm
"B" Value= 96.94

Volume Change = 81.60 cc. Hc.= 20.03 cm. Vc= 1663.77 cc. Ac= 83.05 sq.cm
Preration date : 7/11/33 Saturation date : 7/11/33
Consolidation date: 8/11/33 Shearing date : 9/11/33

Deform. Load Dial		Pore(u)	Strain	Cor. Area	Dev.Stress	Excess u	Nor. OS	A-Para	P1 Eff.	P3 Eff.	Eff.P	Eff.Q
*0.01 mm.	Rdg.(div)	*10E-1 psi	%	sq.cm	kg/sq.cm	kg/sq.cm			kg/sq.cm	kg/sq.cm	KG/SQ.CM	KG/SQ.CM
0.0	0.0	315	0.00	83.05	0.00	0.00	0.00	0.00	6.93	6.93	6.93	0.00
5.0	30.0	321	0.02	83.07	0.39	0.04	0.06	0.11	7.27	6.88	7.08	0.19
15.0	43.0	331	0.07	83.11	0.55	0.11	0.08	0.20	7.37	6.81	7.09	0.28
25.0	118.0	384	0.12	83.16	1.52	0.49	0.22	0.32	7.96	6.44	7.20	0.76
40.0	204.0	457	0.20	83.22	2.62	1.00	0.38	0.38	8.55	5.93	7.24	1.31
55.0	262.0	510	0.27	83.28	3.37	1.37	0.49	0.41	8.92	5.55	7.24	1.68
70.0	318.0	557	0.35	83.34	4.08	1.70	0.59	0.42	9.31	5.22	7.27	2.04
90.0	377.0	601	0.45	83.43	4.84	2.01	0.70	0.42	9.75	4.91	7.33	2.42
110.0	435.0	635	0.55	83.51	5.57	2.25	0.80	0.40	10.25	4.68	7.46	2.79
130.0	487.0	659	0.65	83.59	6.23	2.42	0.90	0.39	10.74	4.51	7.62	3.12
150.0	534.0	678	0.75	83.68	6.83	2.55	0.99	0.37	11.20	4.37	7.79	3.41
170.0	588.0	692	0.85	83.76	7.51	2.65	1.08	0.35	11.79	4.27	8.03	3.76
180.0	606.0	696	0.90	83.80	7.74	2.68	1.12	0.35	11.98	4.25	8.12	3.87
200.0	647.0	702	1.00	83.89	8.25	2.72	1.19	0.33	12.46	4.20	8.33	4.13
220.0	688.0	706	1.10	83.97	8.77	2.75	1.27	0.31	12.94	4.18	8.56	4.38
240.0	722.0	706	1.20	84.06	9.19	2.75	1.33	0.30	13.37	4.18	8.77	4.60
260.0	757.0	707	1.30	84.14	9.63	2.76	1.39	0.29	13.80	4.17	8.98	4.81
300.0	809.0	700	1.50	84.31	10.27	2.71	1.48	0.26	14.49	4.22	9.35	5.13
350.0	870.0	688	1.75	84.53	11.01	2.62	1.59	0.24	15.32	4.30	9.81	5.51
400.0	922.0	669	2.00	84.74	11.64	2.49	1.68	0.21	16.08	4.44	10.26	5.82
500.0	989.0	624	2.50	85.18	12.42	2.17	1.79	0.17	17.18	4.75	10.96	6.21
600.0	1029.0	580	3.00	85.62	12.86	1.86	1.86	0.14	17.92	5.06	11.49	6.43
700.0	1040.0	507	3.49	86.06	12.93	1.35	1.87	0.10	18.51	5.58	12.04	6.47
900.0	1038.0	480	4.49	86.96	12.77	1.16	1.84	0.09	18.54	5.77	12.15	6.39
1100.0	1038.0	443	5.49	87.88	12.64	0.90	1.82	0.07	18.66	6.03	12.34	6.32
1300.0	1027.0	416	6.49	88.82	12.37	0.71	1.79	0.06	18.59	6.22	12.40	6.19
1500.0	1007.0	394	7.49	89.77	12.00	0.56	1.73	0.05	18.37	6.37	12.37	6.00
1700.0	976.0	377	8.49	90.75	11.51	0.44	1.66	0.04	18.00	6.49	12.24	5.75
2000.0	890.0	356	9.98	92.26	10.32	0.29	1.49	0.03	16.96	6.64	11.80	5.16
2300.0	838.0	343	11.48	93.82	9.56	0.20	1.38	0.02	16.29	6.73	11.51	4.78

MATERIAL TESTING SECTION GEOLOGY AND SOIL ENGINEERING DIVISION
SURVEY AND ECOLOGEY DEPARTMENT, EGAT.

PROJECT	LAM TA KONG
SAMPLE NO.	PU-1
DEPT 4.80 m.	DATE 10/11/33



MATERIAL TESTING SECTION, GEOLOGY AND SOIL ENGINEERING DIVISION
SURVEY AND ECOLOGY DEPARTMENT, EGAT.

PROJECT. LAM TA KONG
SAMPLE NO. PU-1
DEPTH 4.80 m. DATE.10/11/33