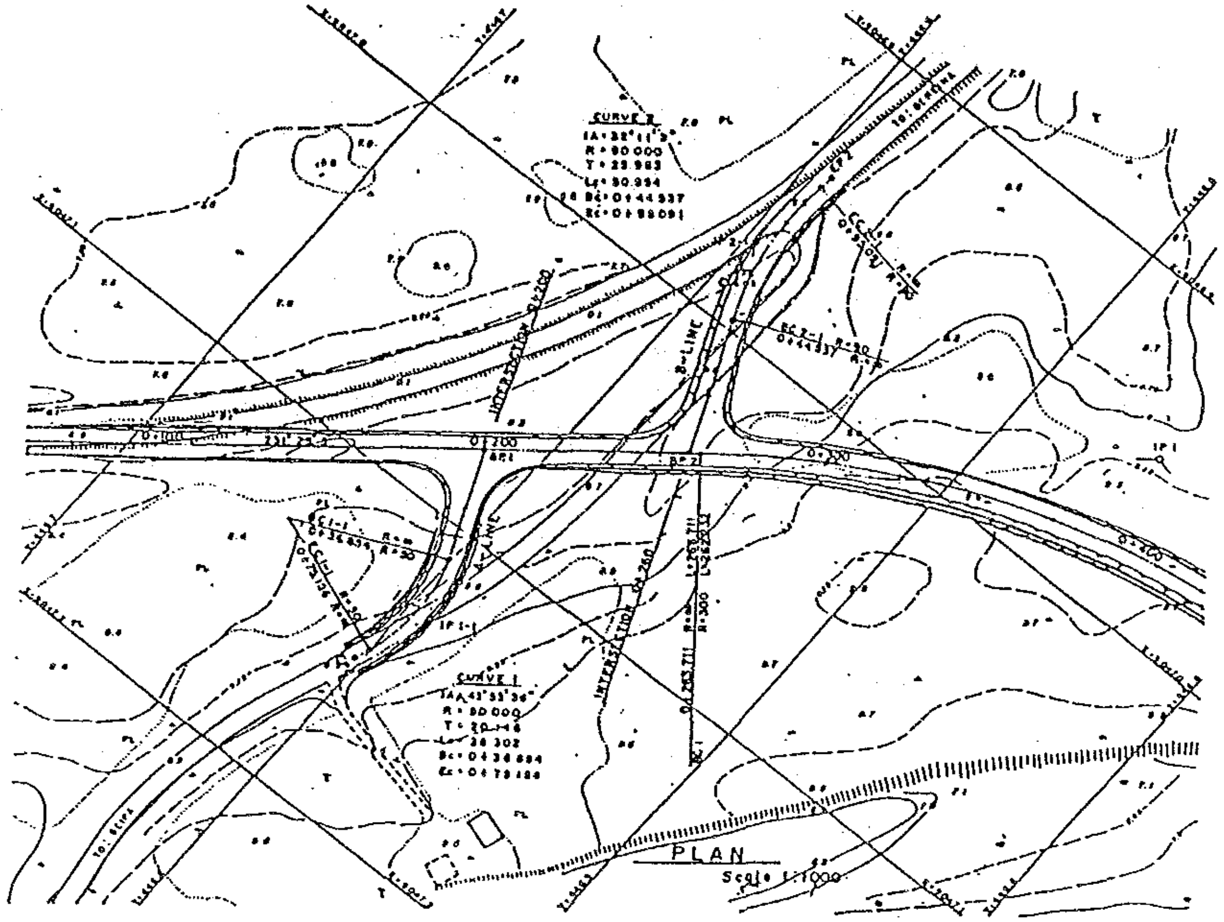
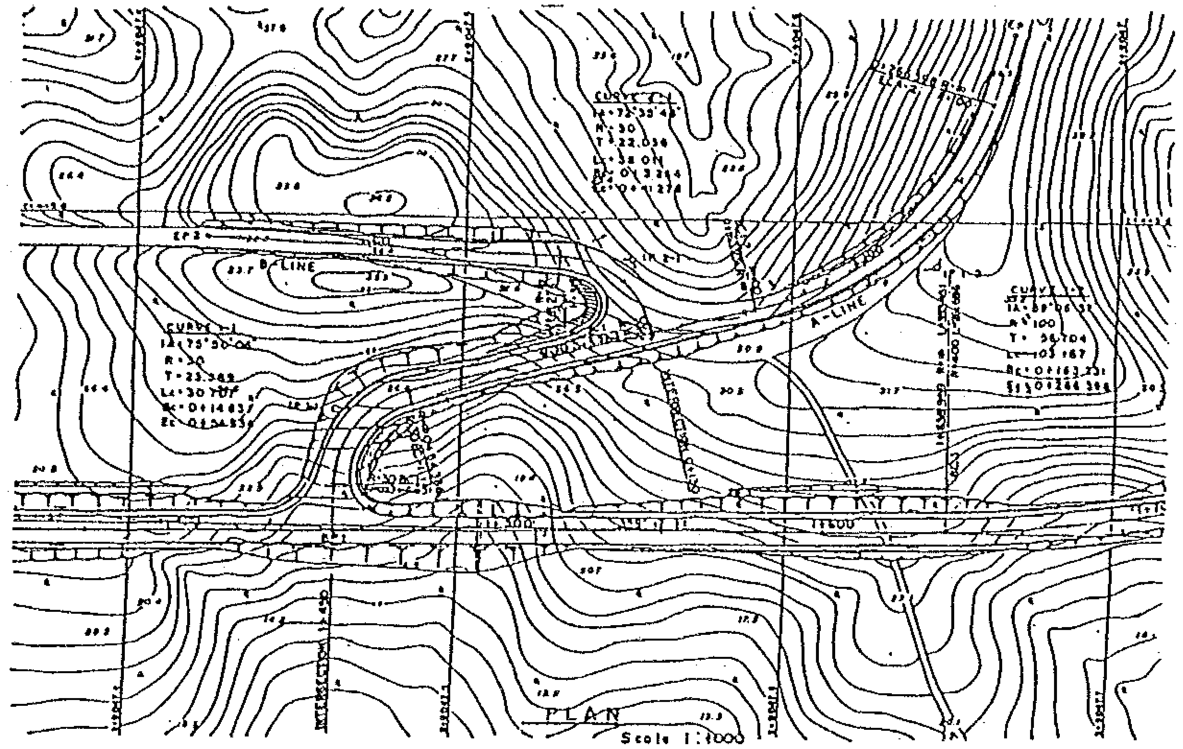
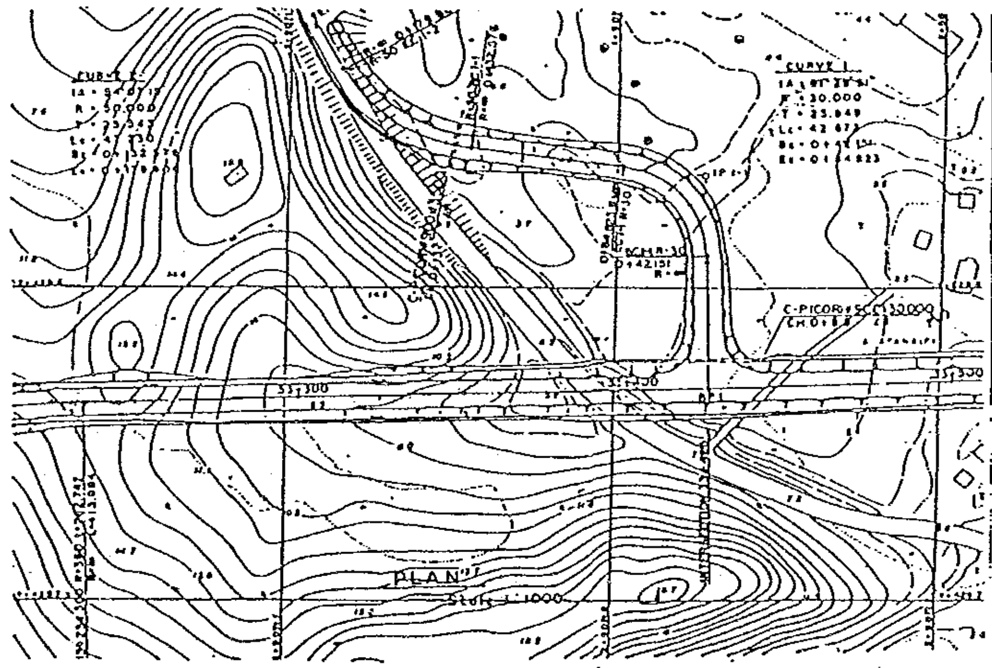


a. INTERSECTION CH0+200 & CH0+260 AND ACCESS ROADS

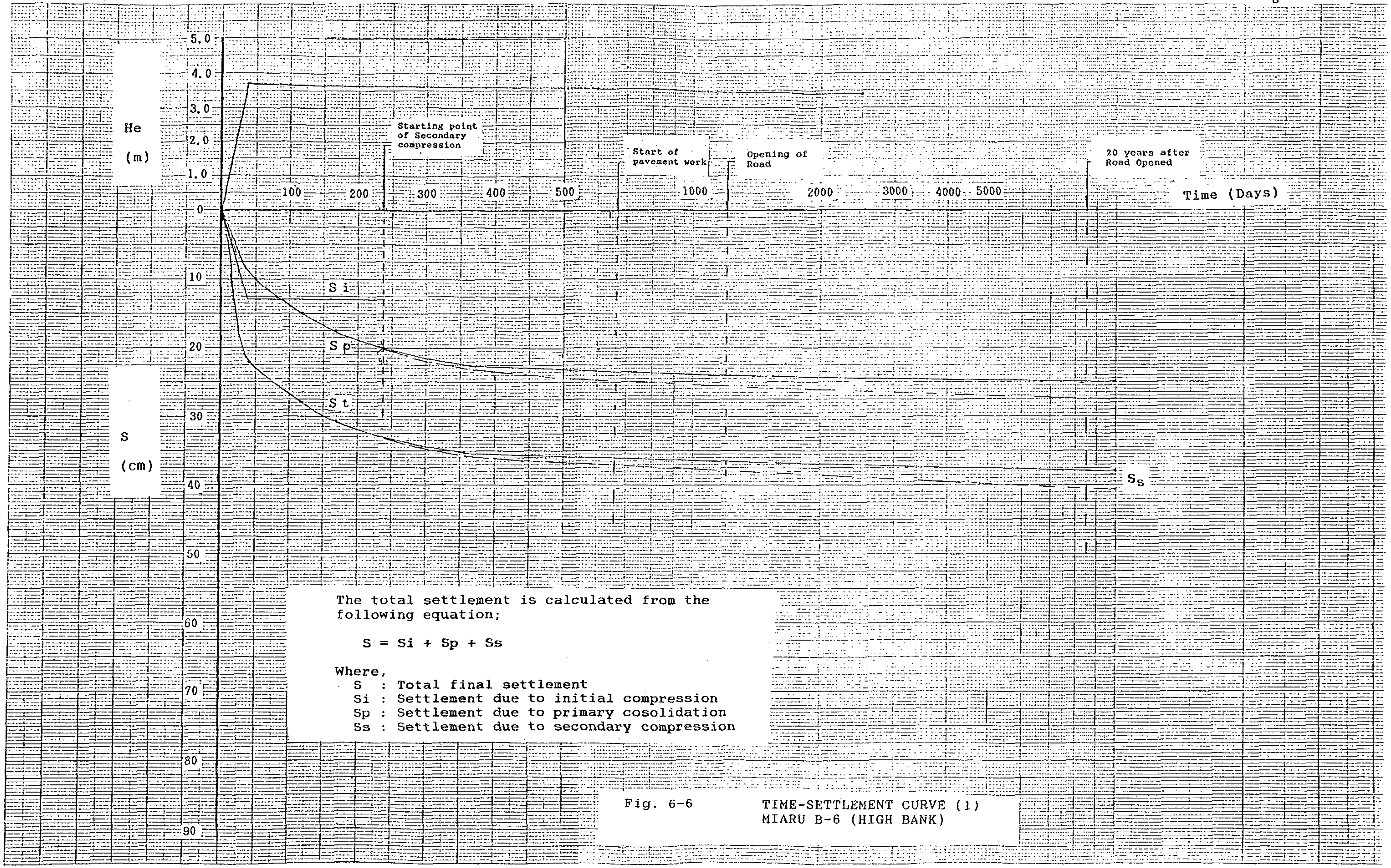


b. INTERSECTION CH.1+450 & ACCESS ROAD



c. INTERSECTION CH.33+425 & ACCESS ROAD

Fig. 6 - 4 MAIN INTERSECTIONS OF THE PROJECT ROAD



The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

Where,
- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (1)
MIARU B-6 (HIGH BANK)

JIS A4 180×250mm

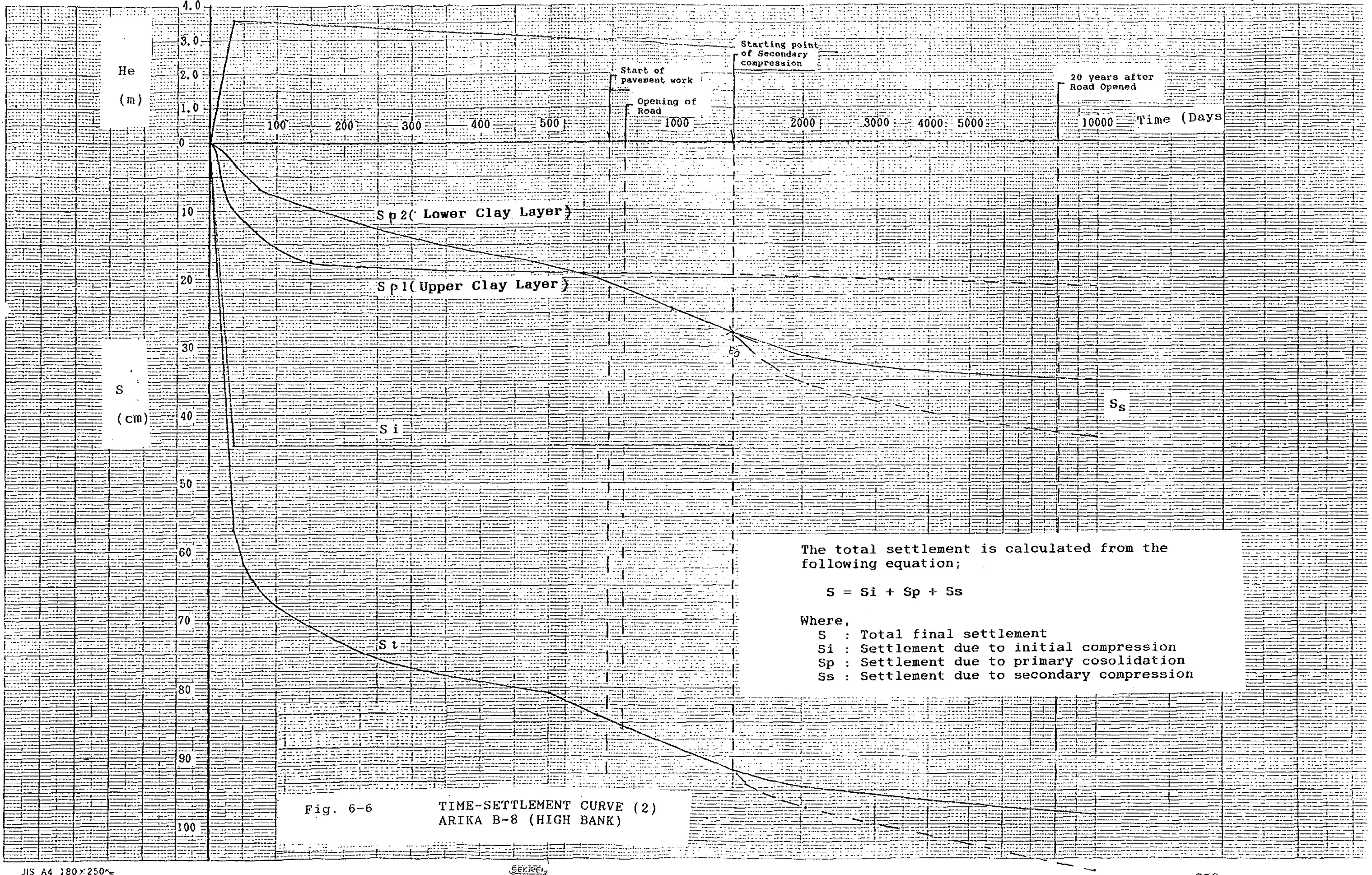
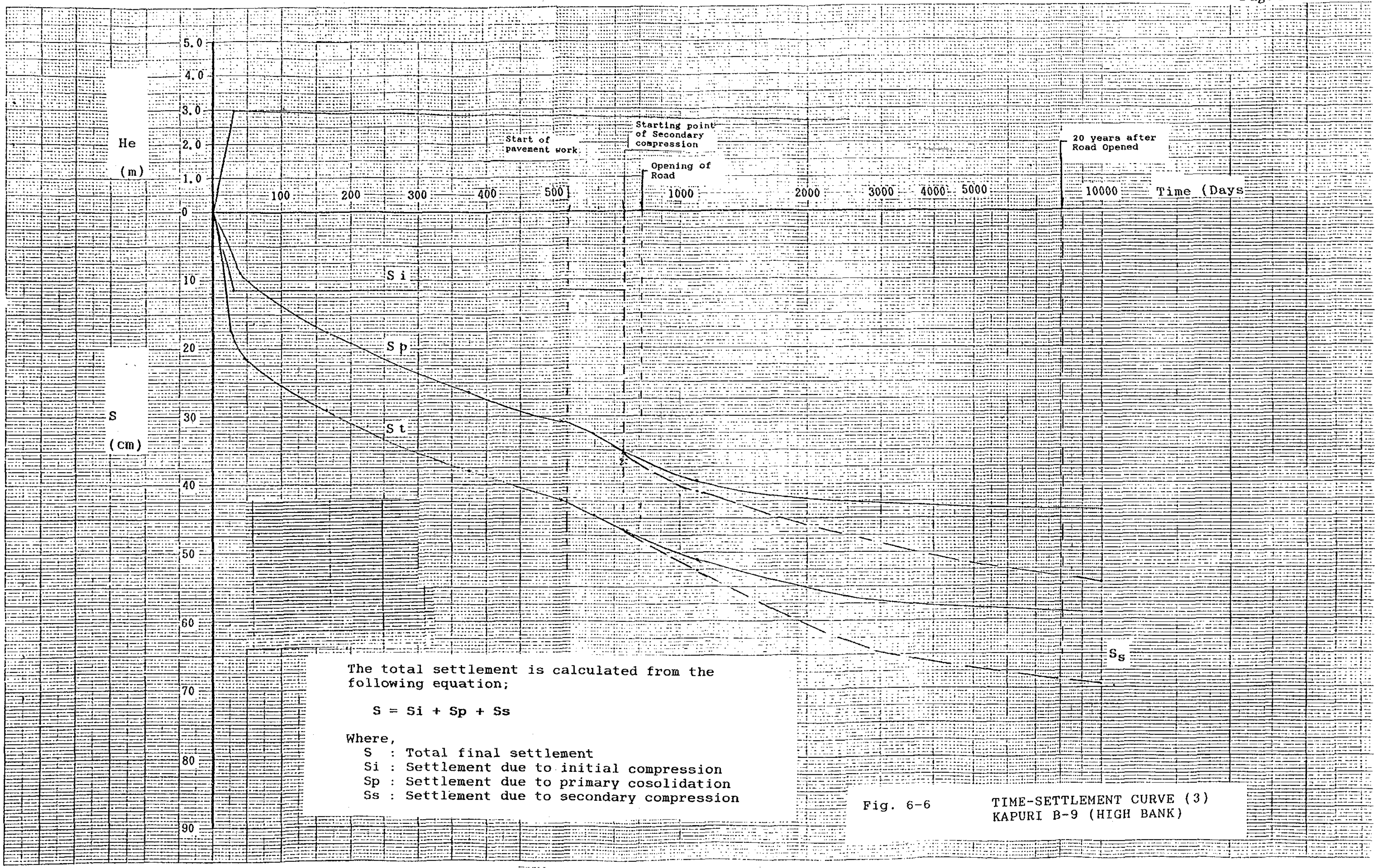


Fig. 6-6 TIME-SETTLEMENT CURVE (2)
ARIKA B-8 (HIGH BANK)

The total settlement is calculated from the following equation;

S = Si + Sp + Ss

Where,
- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

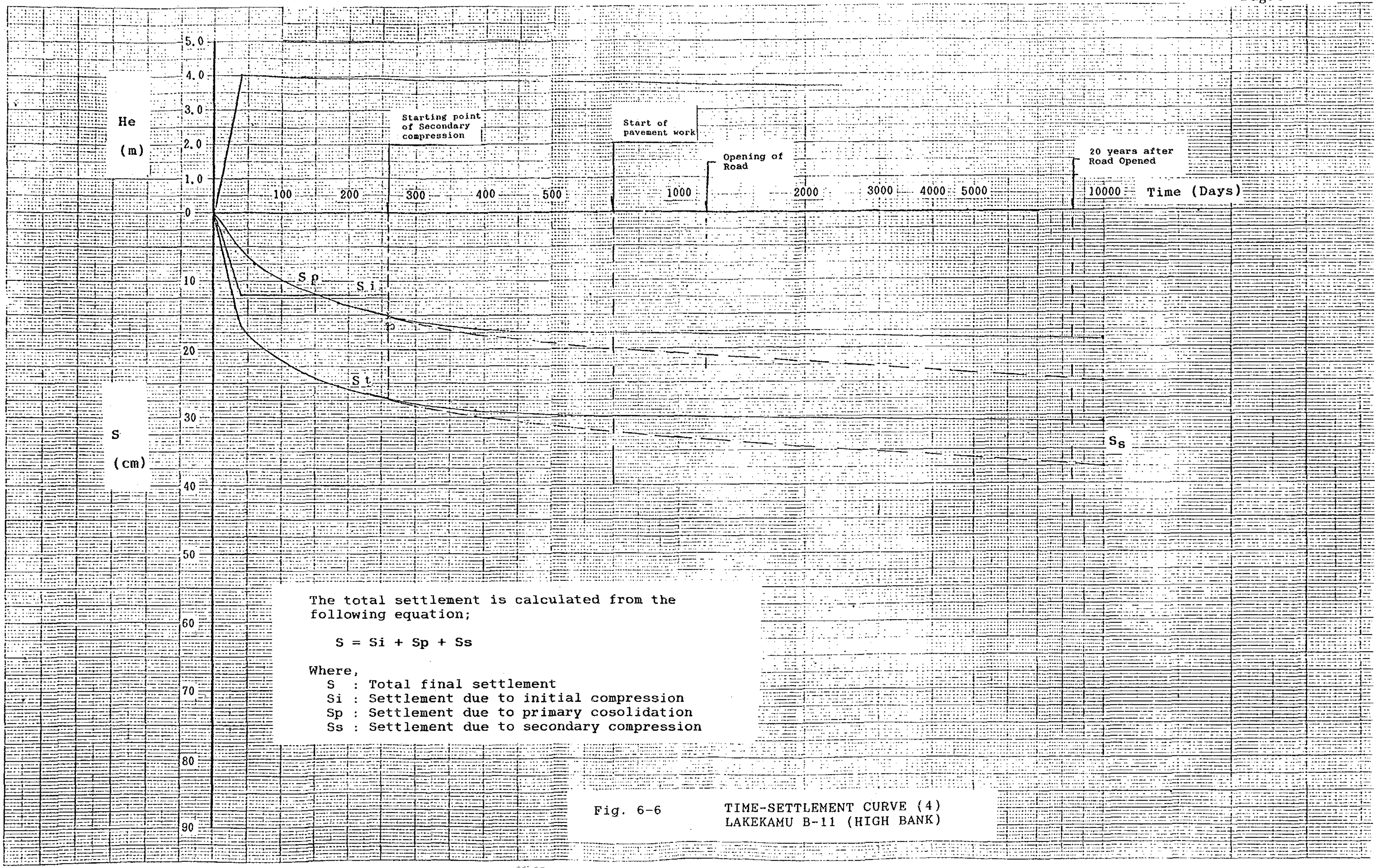


The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

Where,
- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (3) KAPURI B-9 (HIGH BANK)



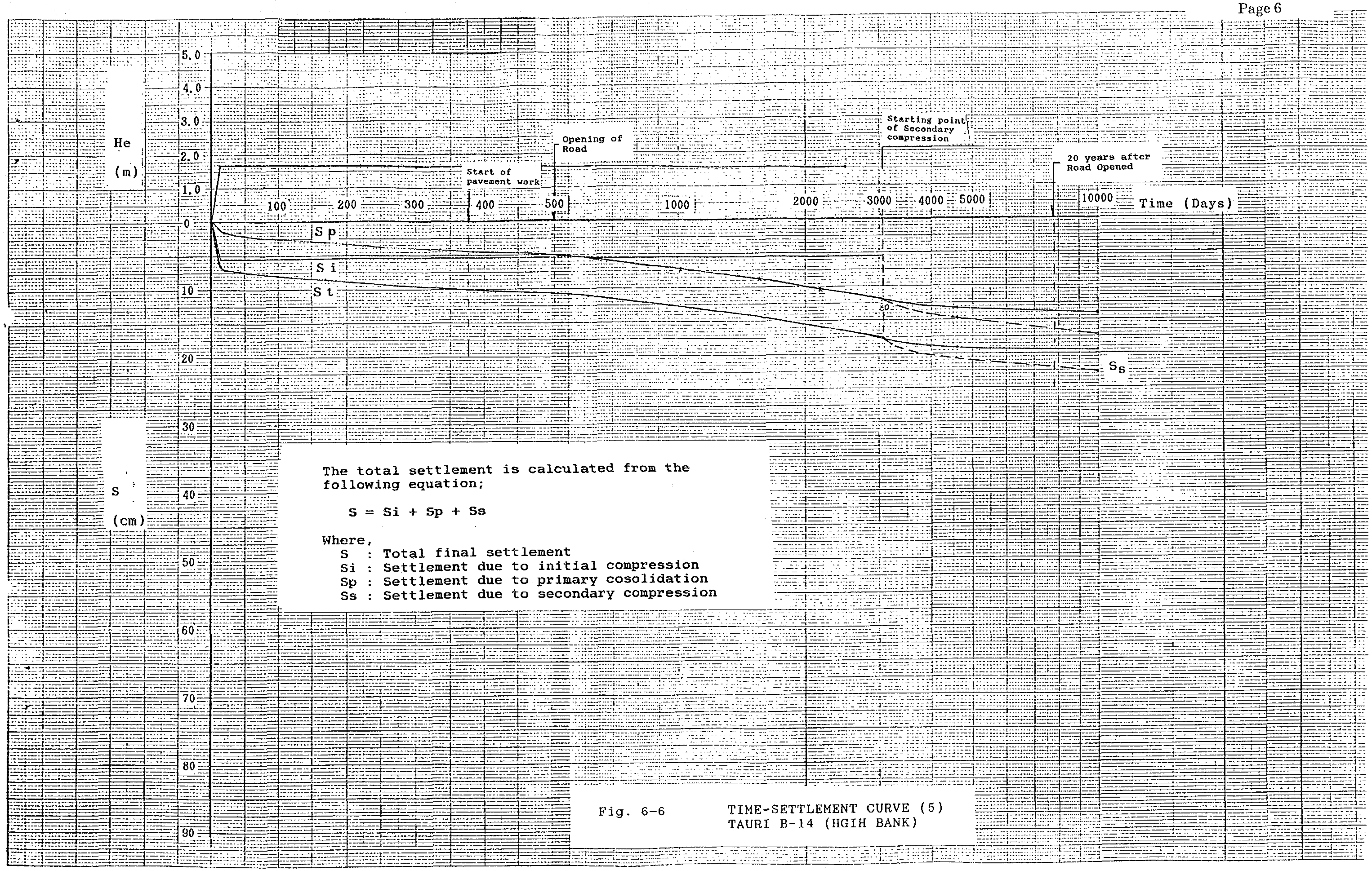
The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

Where,
- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (4)
LAKEKAMU B-11 (HIGH BANK)

JIS A4 180×250m/m

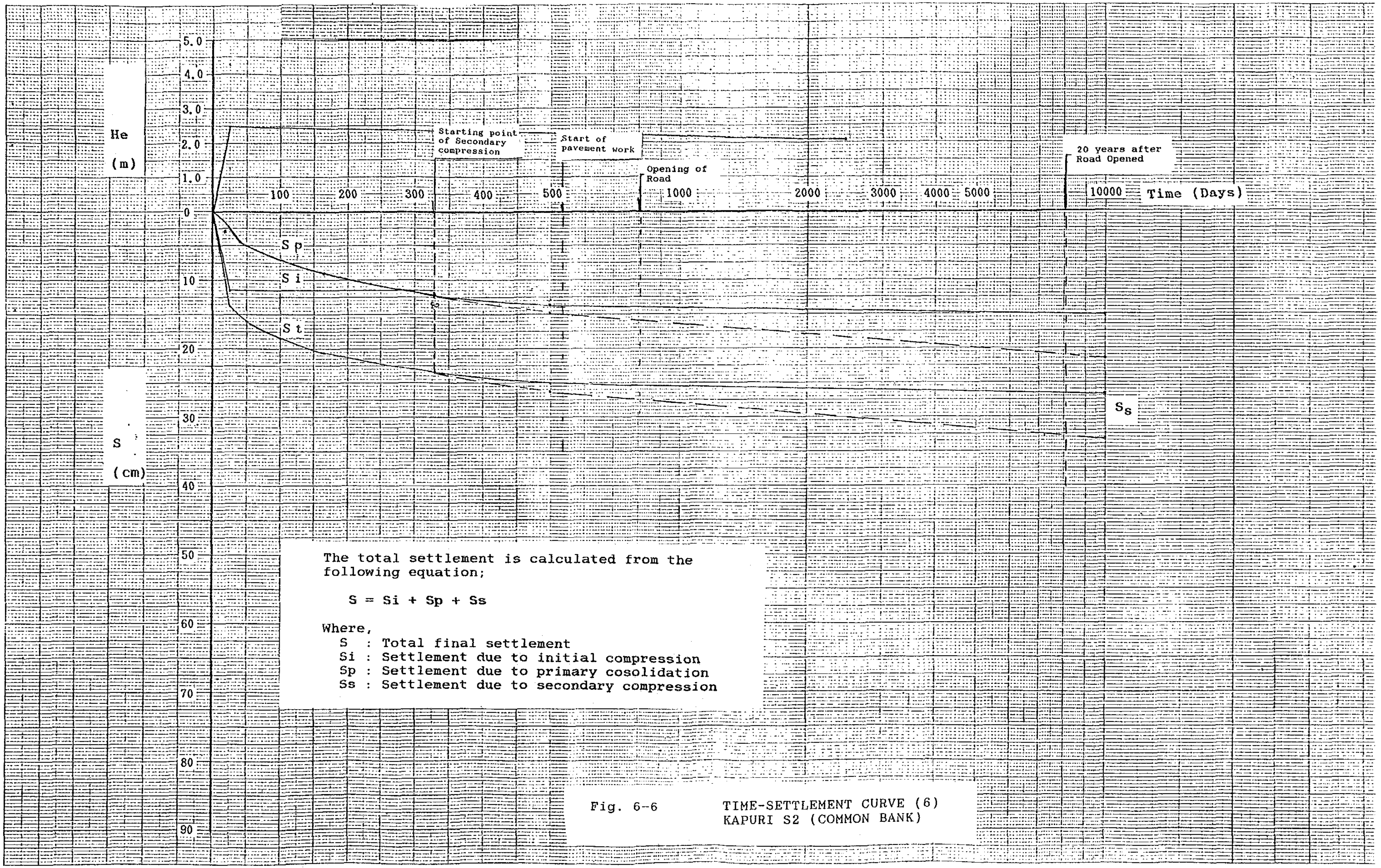


The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

Where,
- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (5)
TAURI B-14 (HGIH BANK)



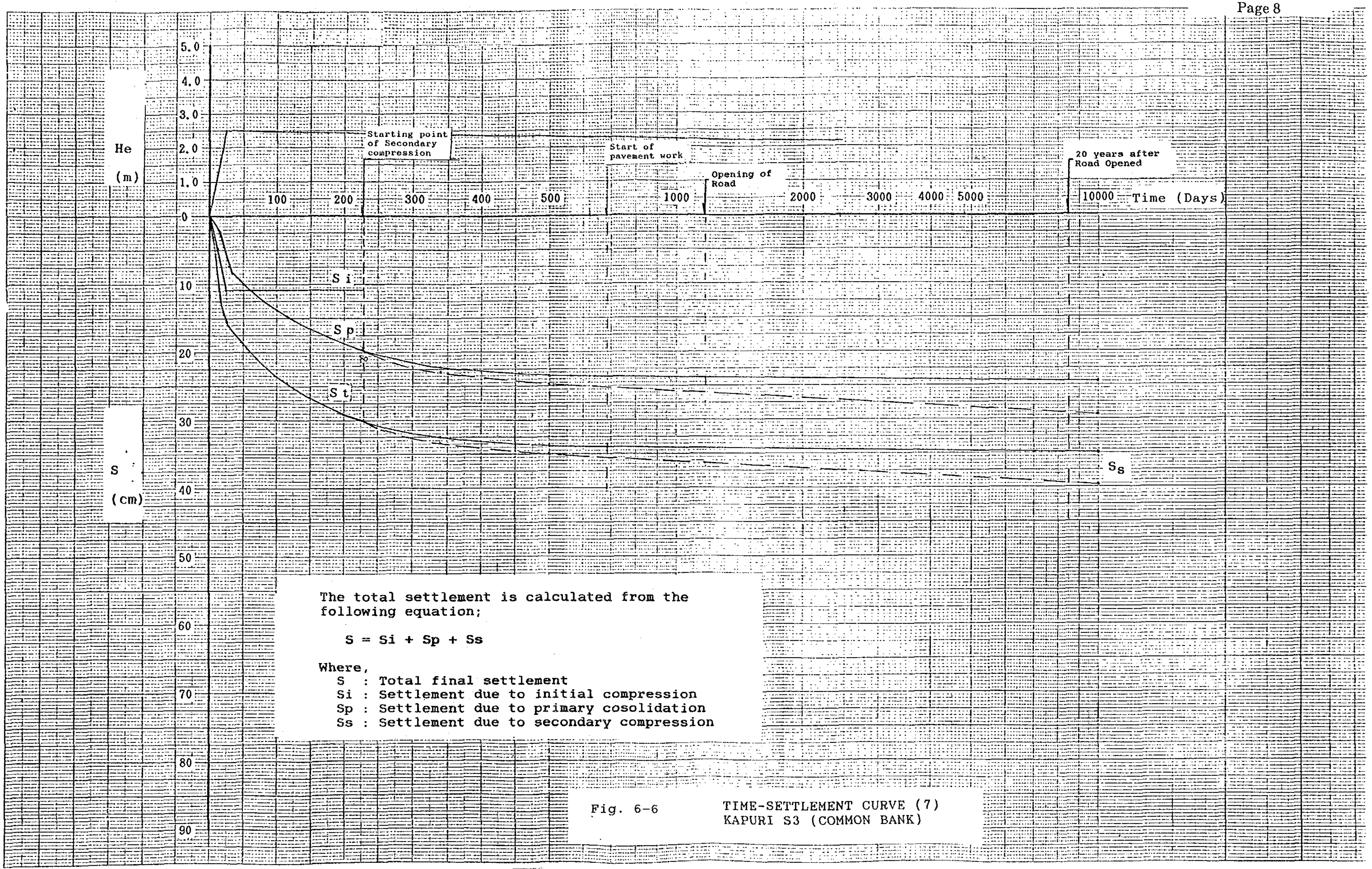
The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

Where,
- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (6)
KAPURI S2 (COMMON BANK)

JIS A4 180×250mm



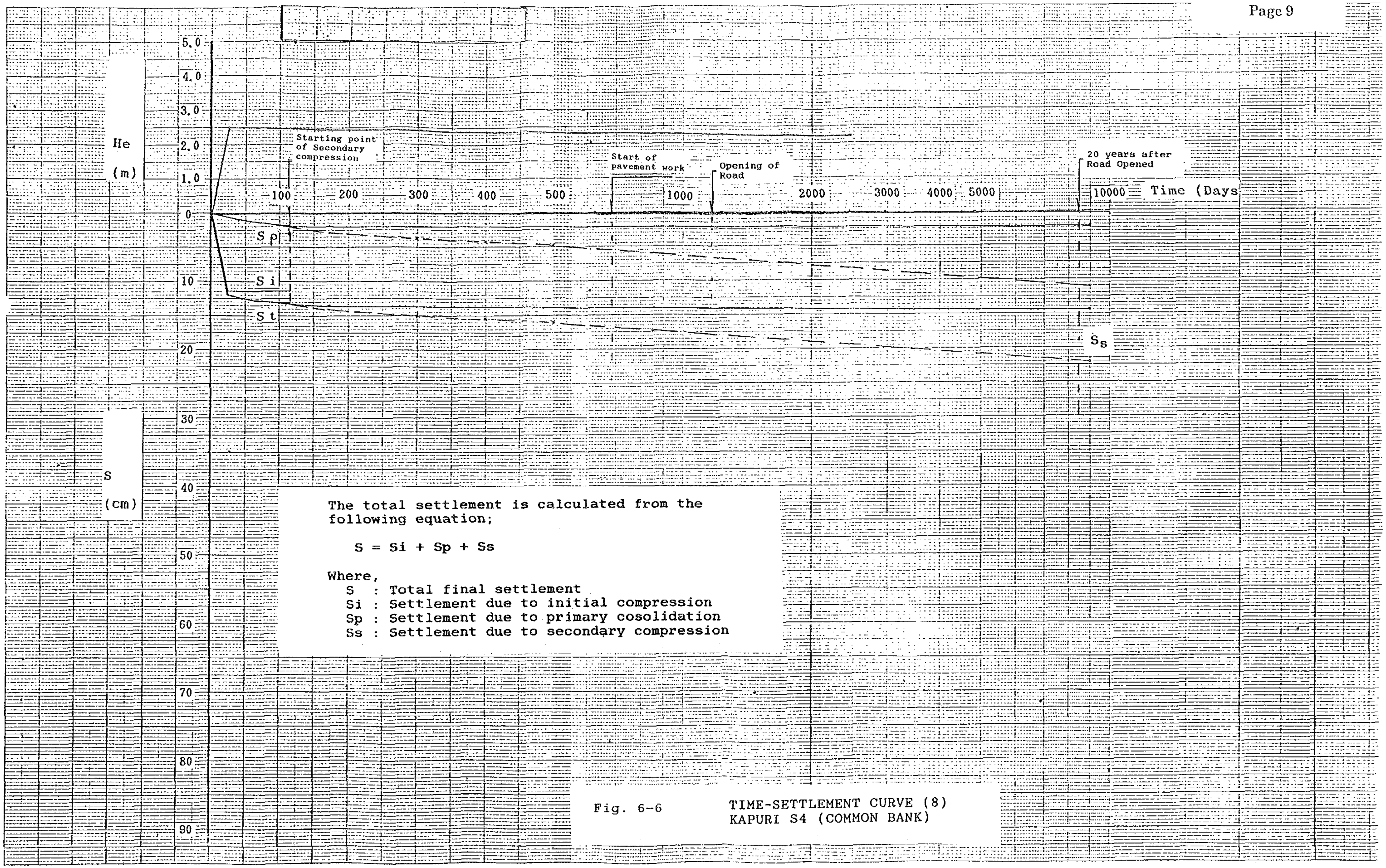
The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

Where,

- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (7)
KAPURI S3 (COMMON BANK)



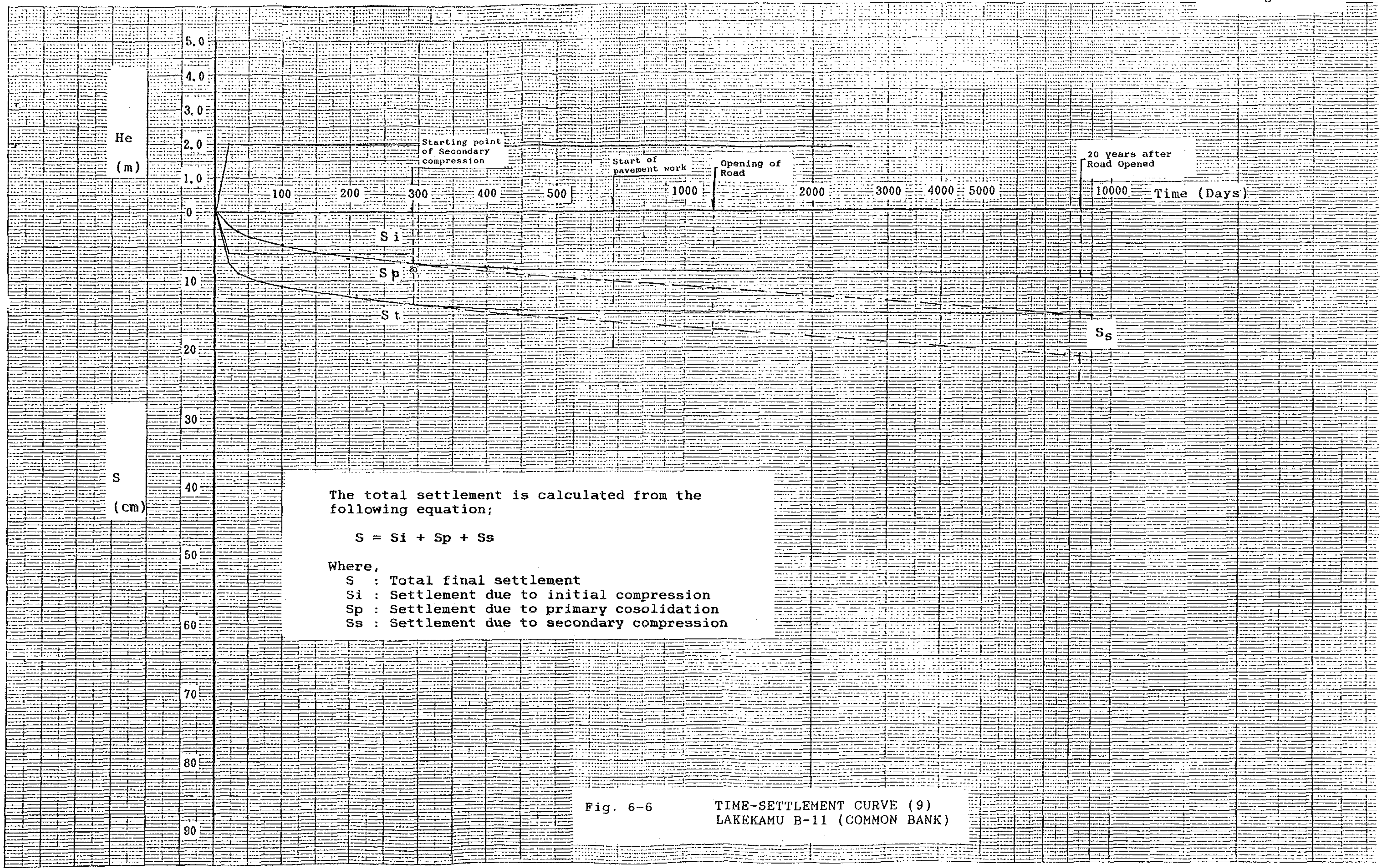
The total settlement is calculated from the following equation;

S = Si + Sp + Ss

Where,
S : Total final settlement
Si : Settlement due to initial compression
Sp : Settlement due to primary cosolidation
Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (8)
KAPURI S4 (COMMON BANK)

JIS A4 180×250㎜ SEKIREI



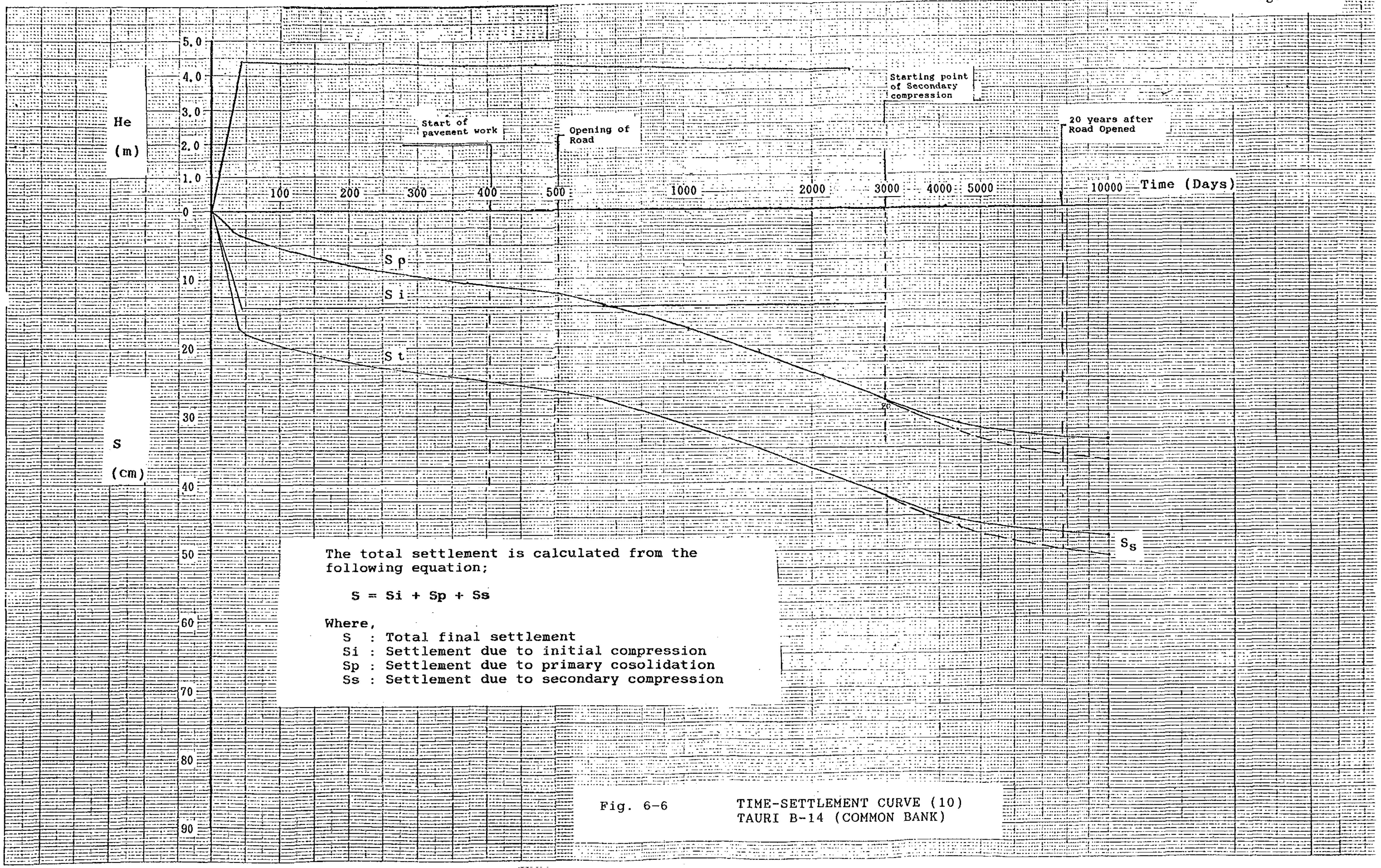
The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

Where,
- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (9)
LAKEKAMU B-11 (COMMON BANK)

JIS A4 180×250



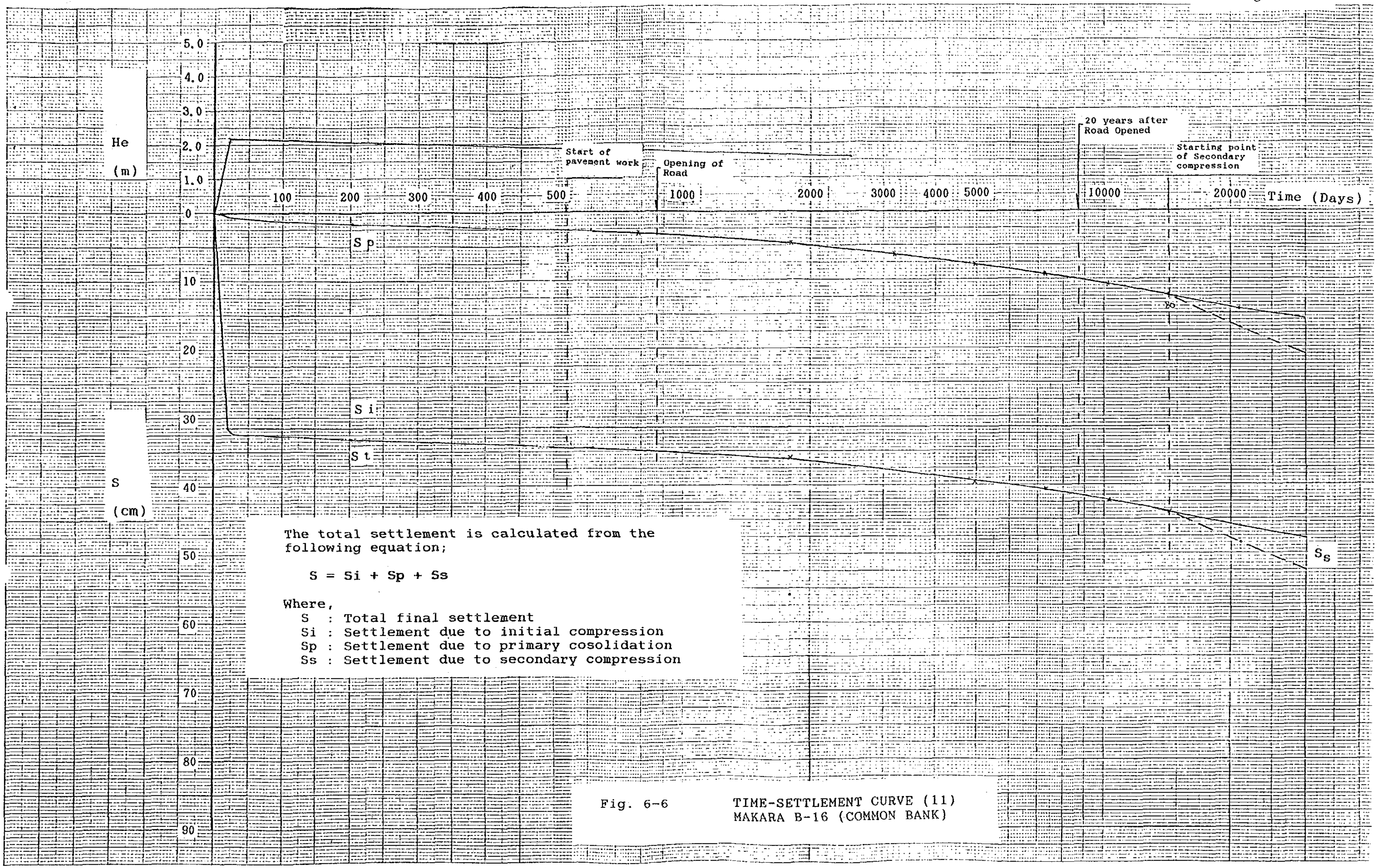
The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

Where,

- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (10)
TAURI B-14 (COMMON BANK)

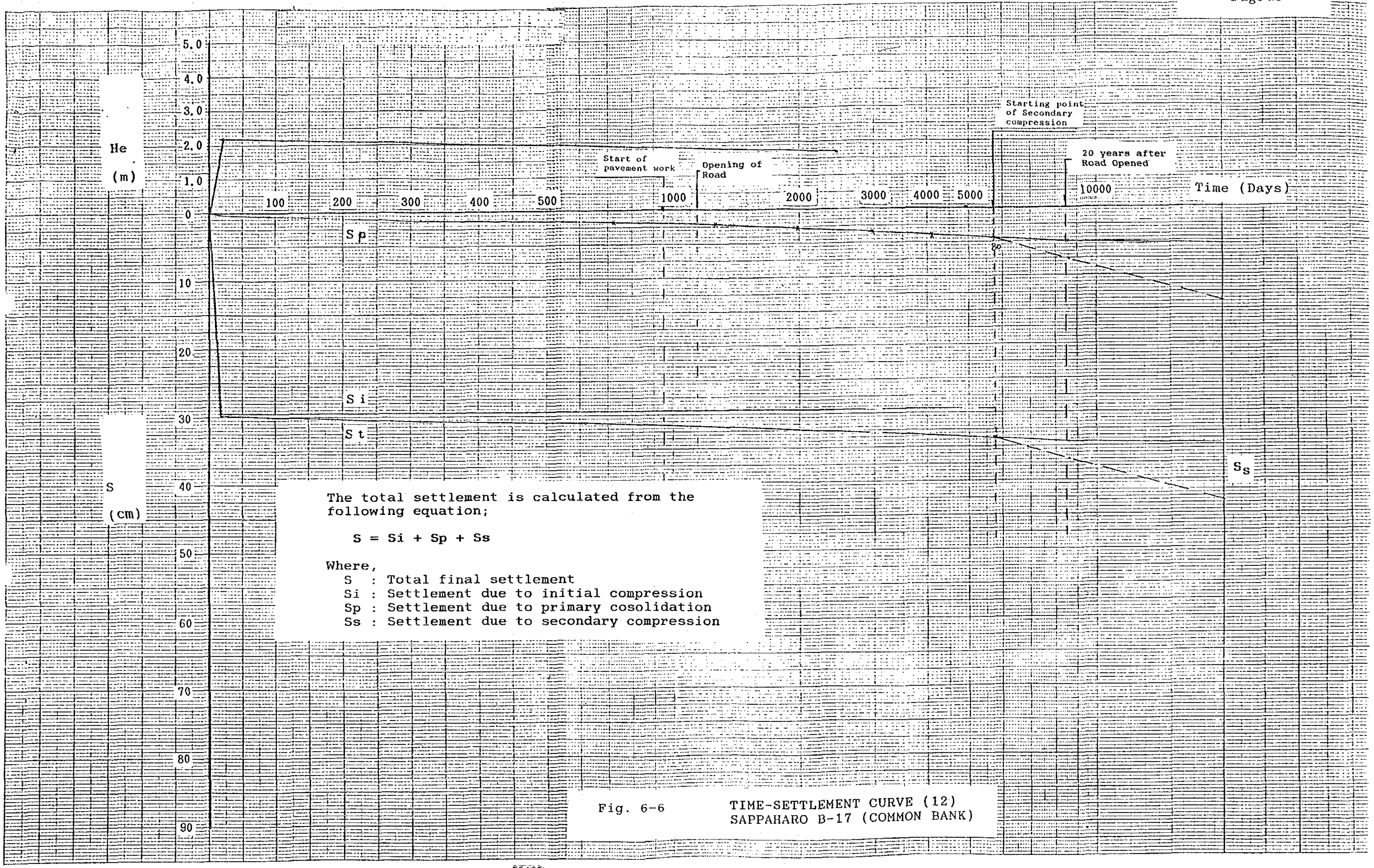


The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

Where,
- S : Total final settlement
- Si : Settlement due to initial compression
- Sp : Settlement due to primary cosolidation
- Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (11)
MAKARA B-16 (COMMON BANK)



The total settlement is calculated from the following equation;

$$S = Si + Sp + Ss$$

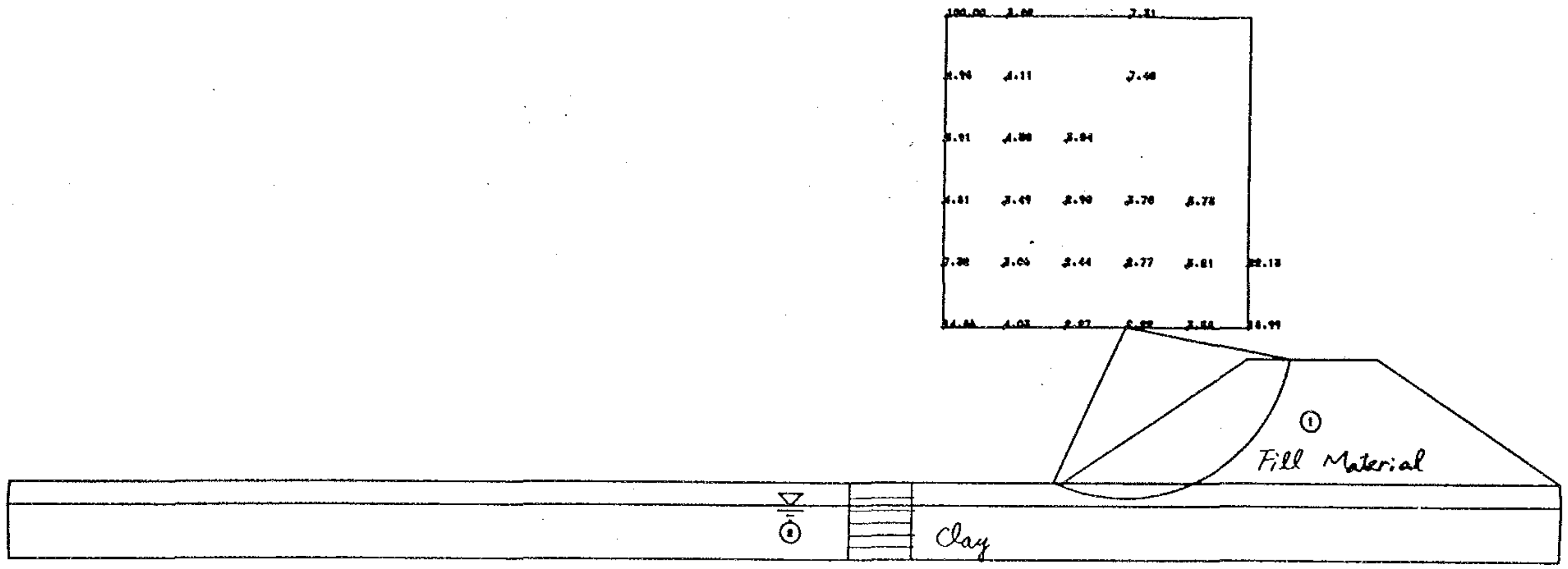
Where,
S : Total final settlement
Si : Settlement due to initial compression
Sp : Settlement due to primary cosolidation
Ss : Settlement due to secondary compression

Fig. 6-6 TIME-SETTLEMENT CURVE (12)
SAPPAHARO B-17 (COMMON BANK)

JIS A4 180×250mm

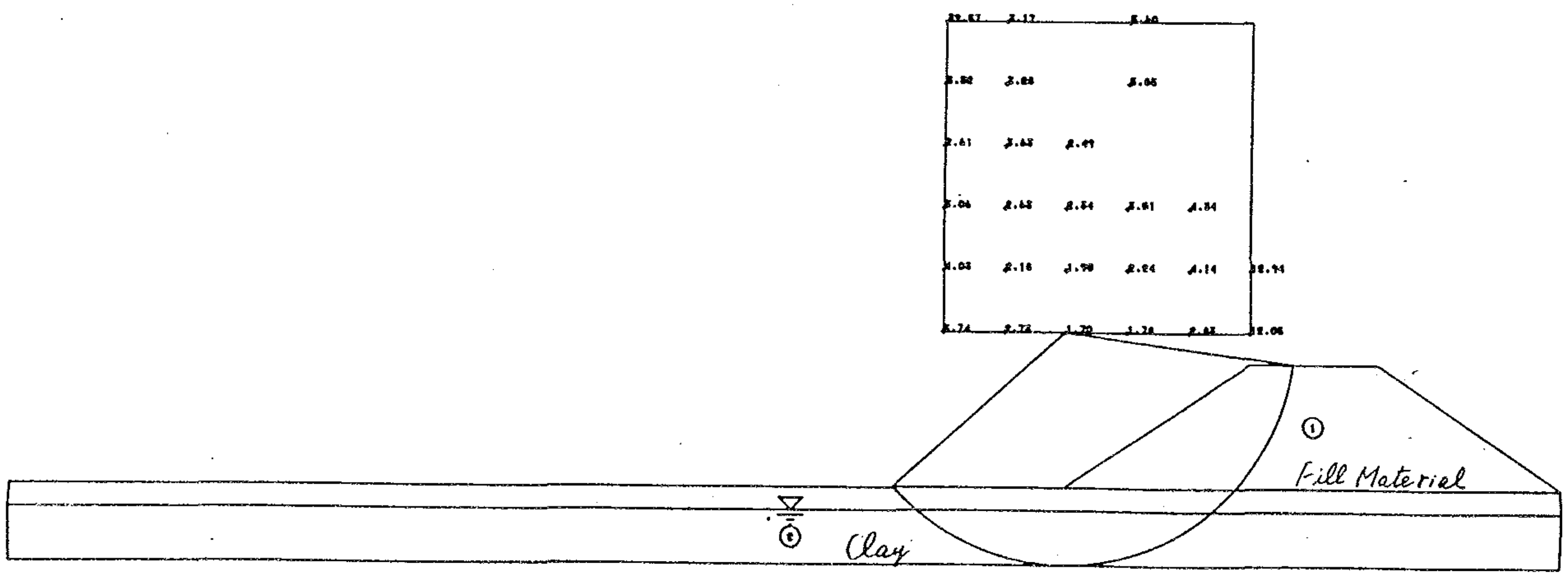
PNG TRANS ISLAND HIGHWAY BEREINA-MIARU SECTION

S T A B I L I T Y A N A L Y S I S



MATERIAL	COHESION (T/m²)	FRICTION (DEG)	W(WET) (T/m³)	W(SAT) (T/m³)	W(SUB) (T/m³)
1	2.80	28.00	1.80	1.90	0.90
2	4.50	0.00	1.73	1.80	0.80
ACCELERATION OF EARTHQUAKE				0.100	

MINIMUM SAFETY FACTOR (NORMAL)		
NORMAL	2.223	
SEISMIC	1.764	



MATERIAL	COHESION (T/m²)	FRICTION (DEG)	W(WET) (T/m³)	W(SAT) (T/m³)	W(SUB) (T/m³)
1	2.80	28.00	1.80	1.90	0.90
2	4.50	0.00	1.73	1.80	0.80
ACCELERATION OF EARTHQUAKE				0.100	

MINIMUM SAFETY FACTOR (SEISMIC)		
NORMAL	2.271	
SEISMIC	1.701	

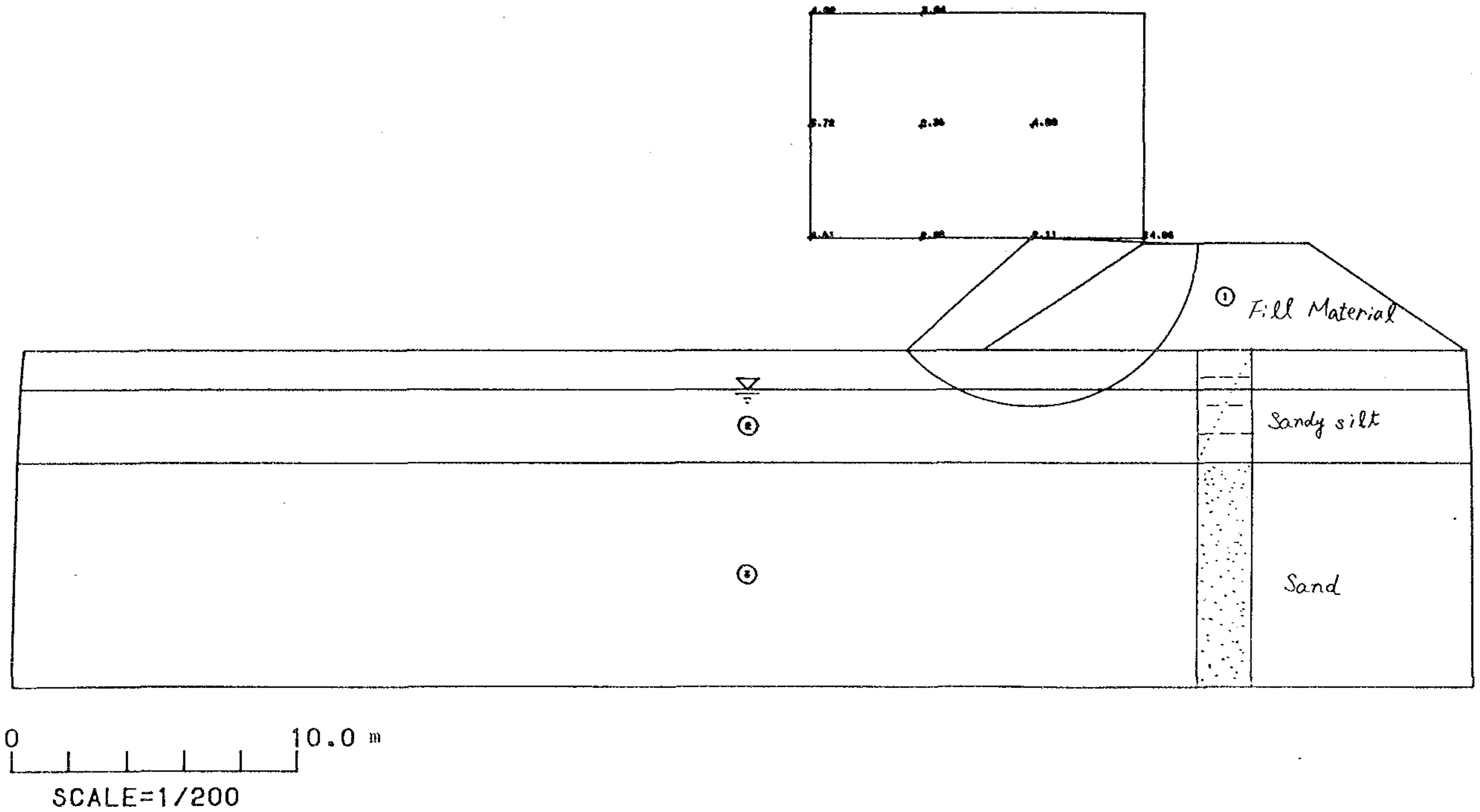
0 20.0 m

SCALE=1/400

Fig. 6-7 STABILITY ANALYSIS (1)

PNG TRANS ISLAND HIGHWAY MIARU RIVER B6

S T A B I L I T Y   A N A L Y S I S



MATERIAL	COHESION (T/m²)	FRICTION (DEG)	W(WET) (T/m³)	W(SAT) (T/m³)	W(SUB) (T/m³)
1	2.80	28.00	1.80	1.90	0.90
2	1.20	9.00	1.70	1.70	0.70
3	0.00	28.00	1.90	1.90	0.90

MINIMUM SAFETY FACTOR (NORMAL)		
NORMAL	2.109	
SEISMIC		

Fig. 6-7 STABILITY ANALYSIS (2)

PNG TRANS ISLAND HIGHWAY ALIKA SWAMP
S T A B I L I T Y   A N A L Y S I S

MATERIAL	COHESION (T/m^2)	FRICTION (DEG)	W(WET) (T/m^3)	W(SAT) (T/m^3)	W(SUB) (T/m^3)
1	2.80	28.00	1.80	1.90	0.90
2	0.00	30.00	1.65	1.70	0.70
3	0.00	27.00	1.65	1.70	0.70
4	2.00	0.00	1.75	1.75	0.75
5	0.00	27.00	1.82	1.82	0.82
6	3.50	0.00	1.75	1.75	0.75
7	0.00	37.00	1.90	1.90	0.90
ACCELERATION OF EARTHQUAKE				0.100	

MINIMUM SAFETY FACTOR (NORMAL)		
NORMAL	1.384	
SEISMIC	0.923	

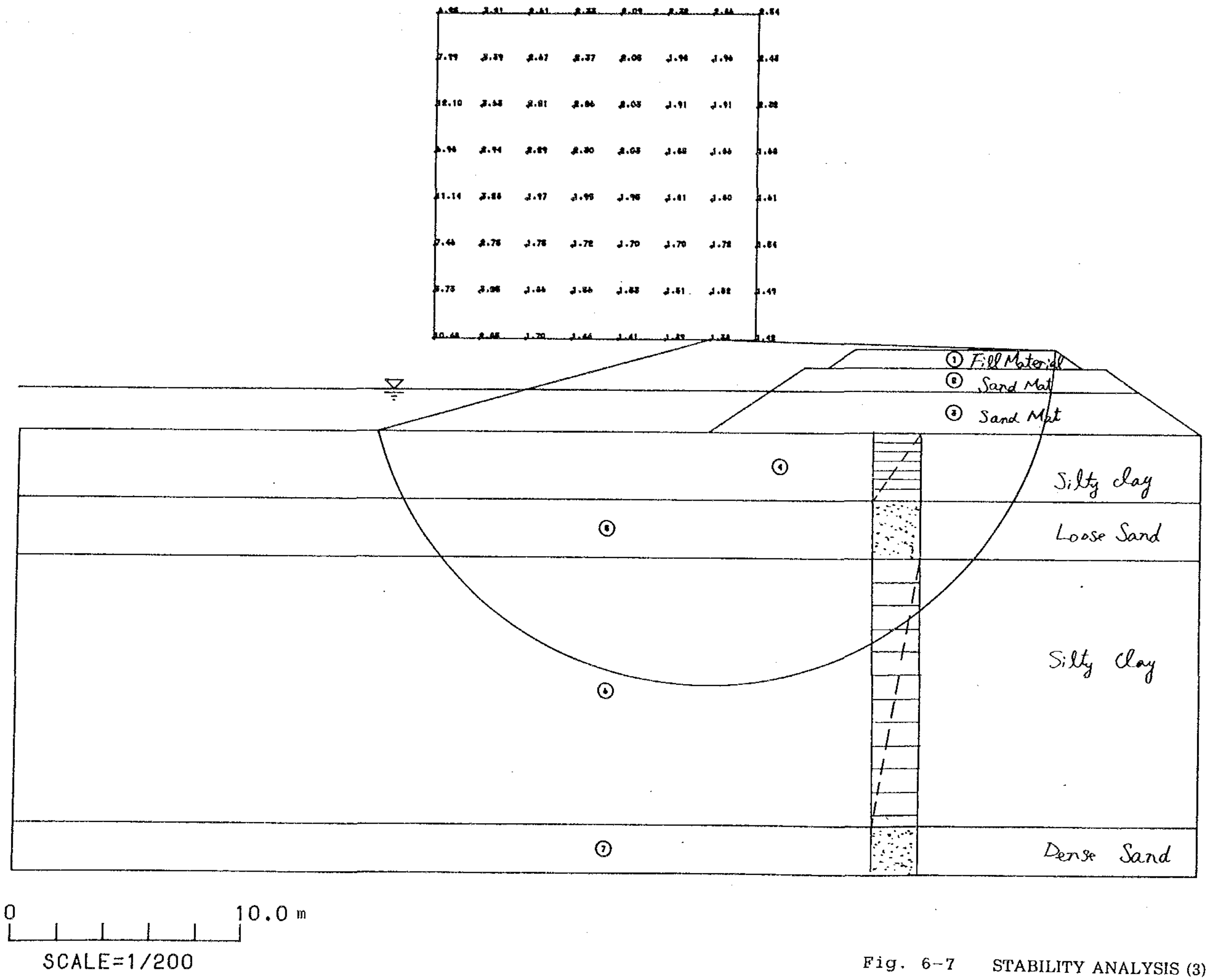
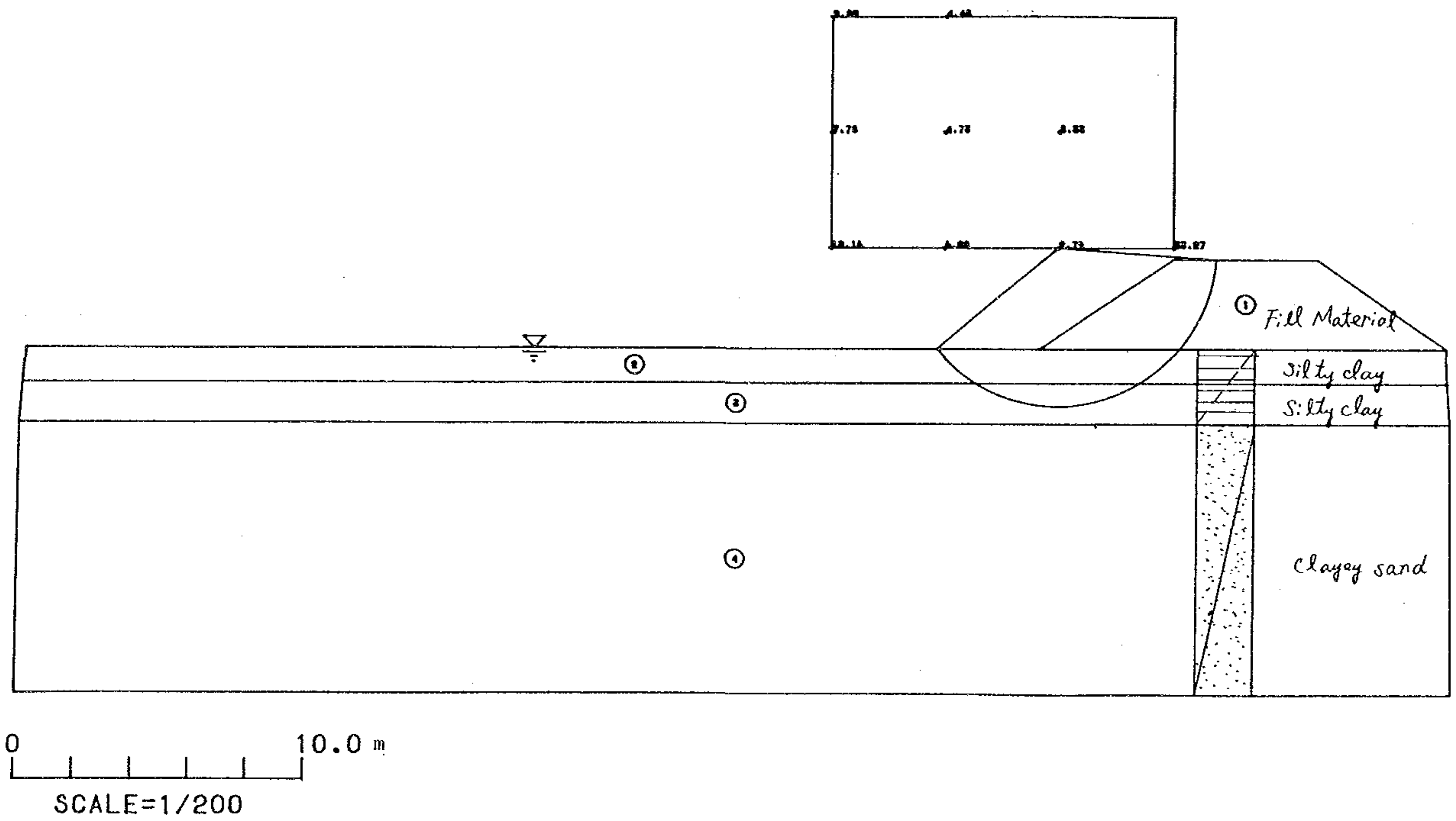


Fig. 6-7 STABILITY ANALYSIS (3)

PNG TRANS ISLAND HIGHWAY　　KAPURI RIVER B9

S T A B I L I T Y　A N A L Y S I S

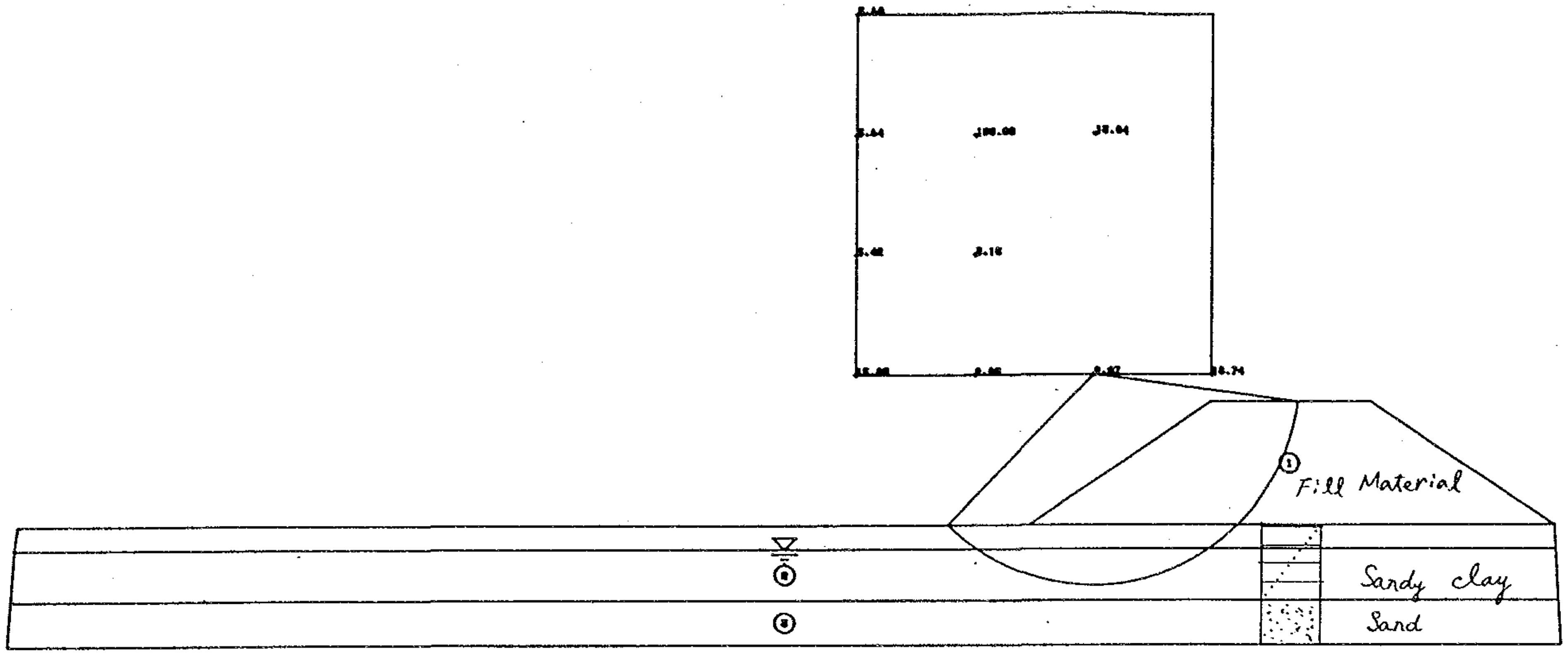


MATERIAL	COHESION (T/m²)	FRICTION (DEG)	W(WET) (T/m³)	W(SAT) (T/m³)	W(SUB) (T/m³)
1	5.20	31.50	1.80	1.90	0.90
2	0.60	6.00	1.50	1.50	0.50
3	1.10	6.00	1.70	1.70	0.70
4	2.00	32.50	1.90	1.90	0.90

MINIMUM SAFETY FACTOR (NORMAL)		
NORMAL	2.788	
SEISMIC		

Fig. 6-7　　STABILITY ANALYSIS (4)

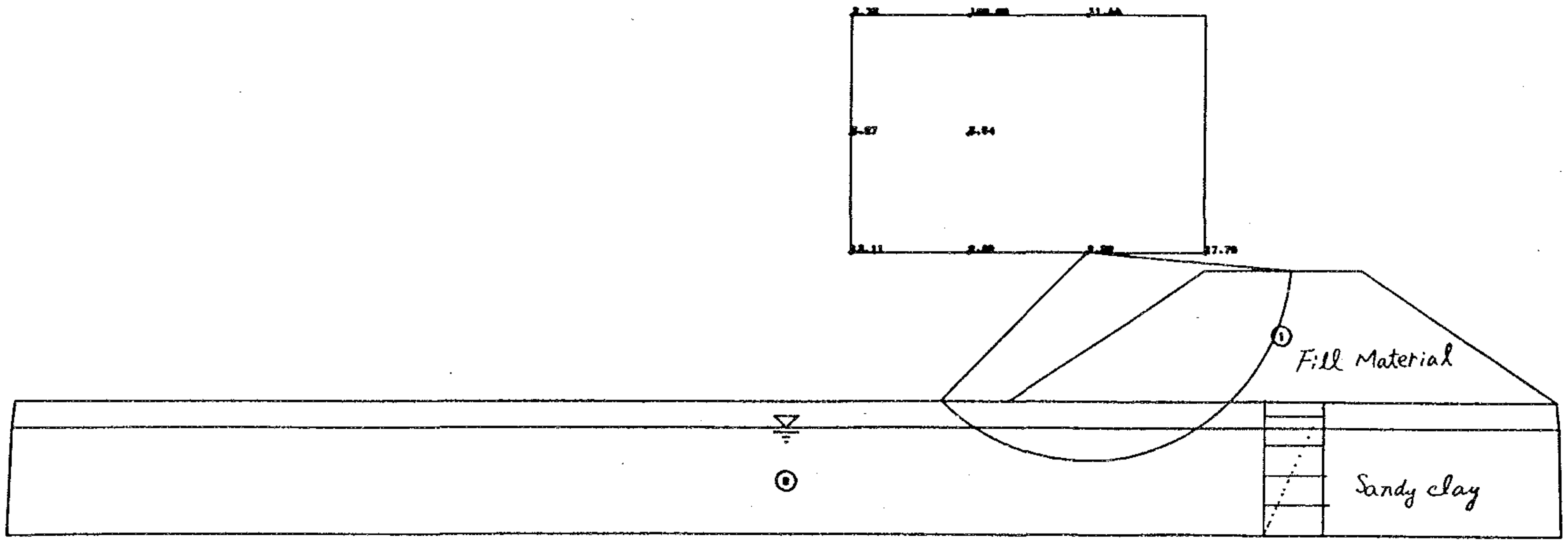
PNG TRANS ISLAND HIGHWAY LAKEKAMU RIVER B12
S T A B I L I T Y A N A L Y S I S



MATERIAL	COHESION (T/m^2)	FRICTION (DEG)	W(WET) (T/m^3)	W(SAT) (T/m^3)	W(SUB) (T/m^3)
1	5.20	31.50	1.80	1.80	0.80
2	0.80	2.50	1.70	1.70	0.70
3	0.00	27.00	1.90	1.90	0.90

MINIMUM SAFETY FACTOR (NORMAL)		
NORMAL	2.073	
SEISMIC		

PNG TRANS ISLAND HIGHWAY TAURI RIVER B13
S T A B I L I T Y A N A L Y S I S



MATERIAL	COHESION (T/m^2)	FRICTION (DEG)	W(WET) (T/m^3)	W(SAT) (T/m^3)	W(SUB) (T/m^3)
1	5.20	31.50	1.80	1.90	0.90
2	1.50	6.00	1.60	1.60	0.60

MINIMUM SAFETY FACTOR (NORMAL)		
NORMAL	2.522	
SEISMIC		

0 10.0 m
SCALE=1/200

Fig. 6-7 STABILITY ANALYSIS (5)

PNG TRANS ISLAND HIGHWAY MAKARA RIVER B15

S T A B I L I T Y A N A L Y S I S

MATERIAL	COHESION (T/m²)	FRICTION (DEG)	W(WET) (T/m³)	W(SAT) (T/m³)	W(SUB) (T/m³)
1	5.20	31.50	1.80	1.90	0.90
2	0.00	30.00	1.65	1.90	0.90
3	1.00	7.00	1.70	1.70	0.70
4	0.00	24.00	1.90	1.90	0.90
5	1.50	0.00	1.70	1.70	0.70

MINIMUM SAFETY FACTOR (NORMAL)		
NORMAL	1.705	
SEISMIC		

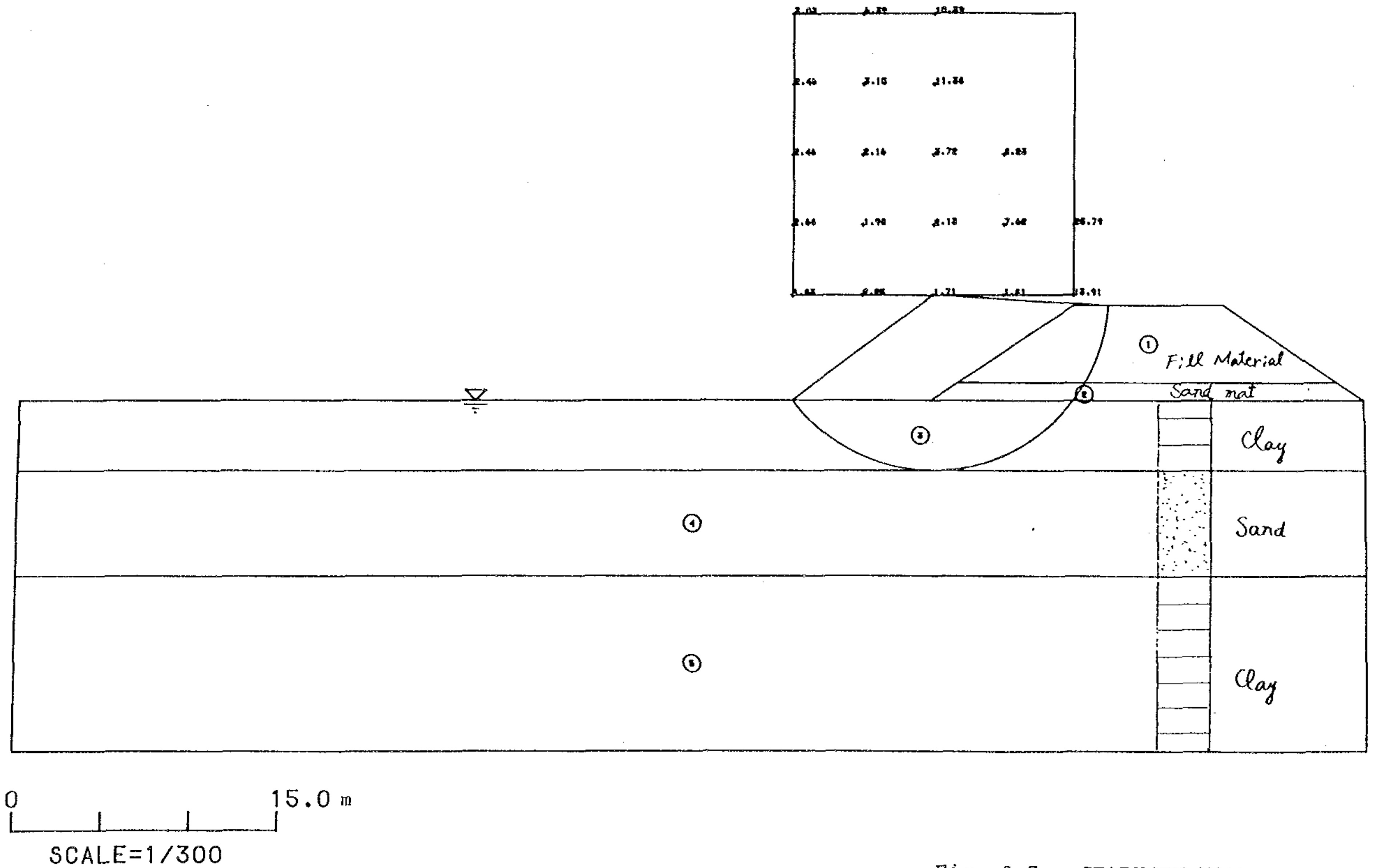
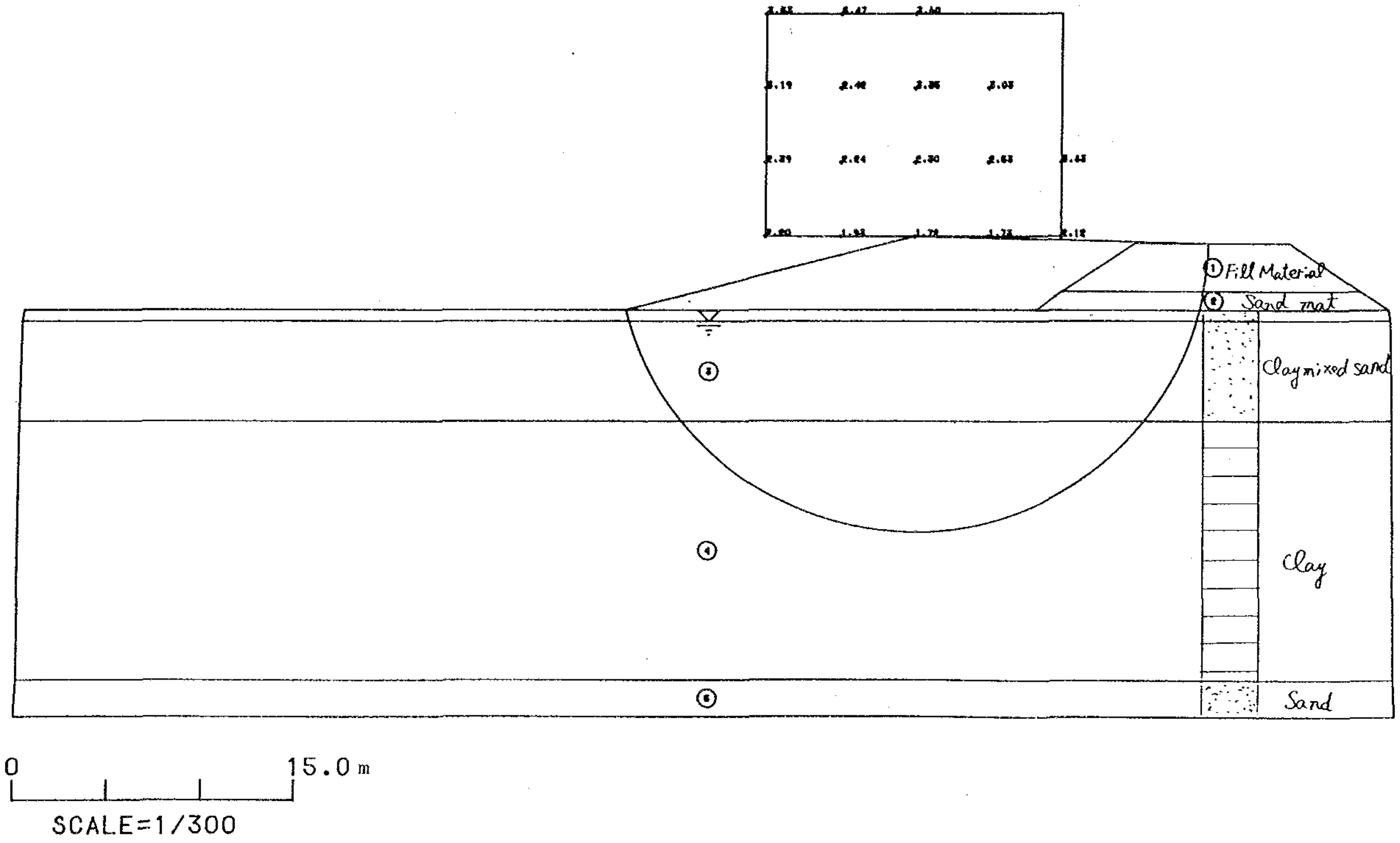


Fig. 6-7 STABILITY ANALYSIS (6)

PNG TRANS ISLAND HIGHWAY SAPPAHARO RIVER B18

S T A B I L I T Y   A N A L Y S I S



MATERIAL	COHESION (T/m²)	FRICTION (DEG)	W(WET) (T/m³)	W(SAT) (T/m³)	W(SUB) (T/m³)
1	5.20	31.50	1.80	1.90	0.90
2	0.00	30.00	1.65	1.90	0.90
3	0.00	24.00	1.90	1.90	0.90
4	1.10	0.00	1.70	1.70	0.70
5	0.00	27.00	1.90	1.90	0.90

MINIMUM SAFETY FACTOR (NORMAL)		
NORMAL	1.717	
SEISMIC		

Fig. 6-6 STABILITY ANALYSIS (7)

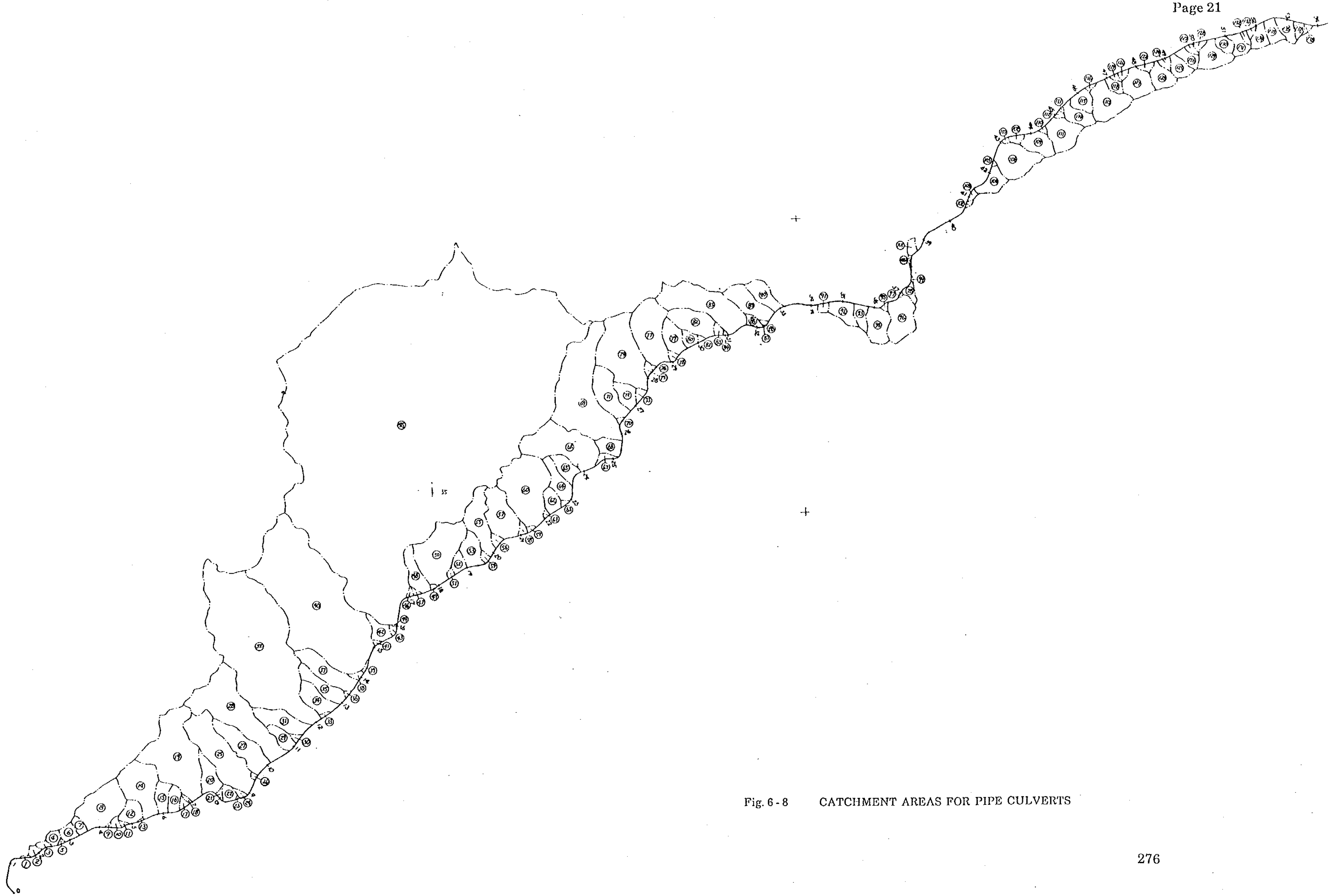
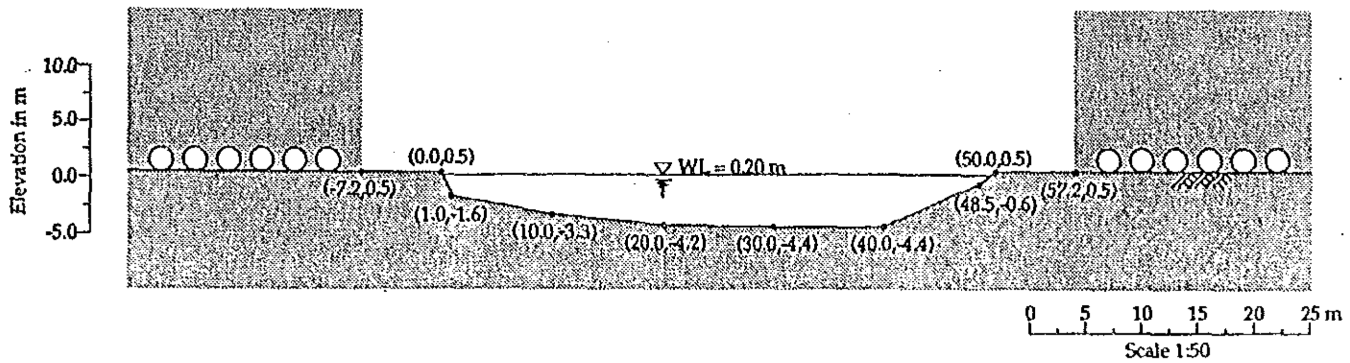


Fig. 6-8 CATCHMENT AREAS FOR PIPE CULVERTS



Assumption of flood routine

Kapuri river	River bed slope	s = 0.003 %		
	Roughness coefficient	n = 0.025		

○ Corrugated metal pipe

Roughness coefficient	n = 0.024
Installation level	EL = 0.5 m
Slope condition	Level

Numbers D900 : 81 nos.
D1200 : 3 nos.
D2100 : 8 nos.

Fig. 6 - 12 ASSUMPTION FOR FLOOD ROUTIN

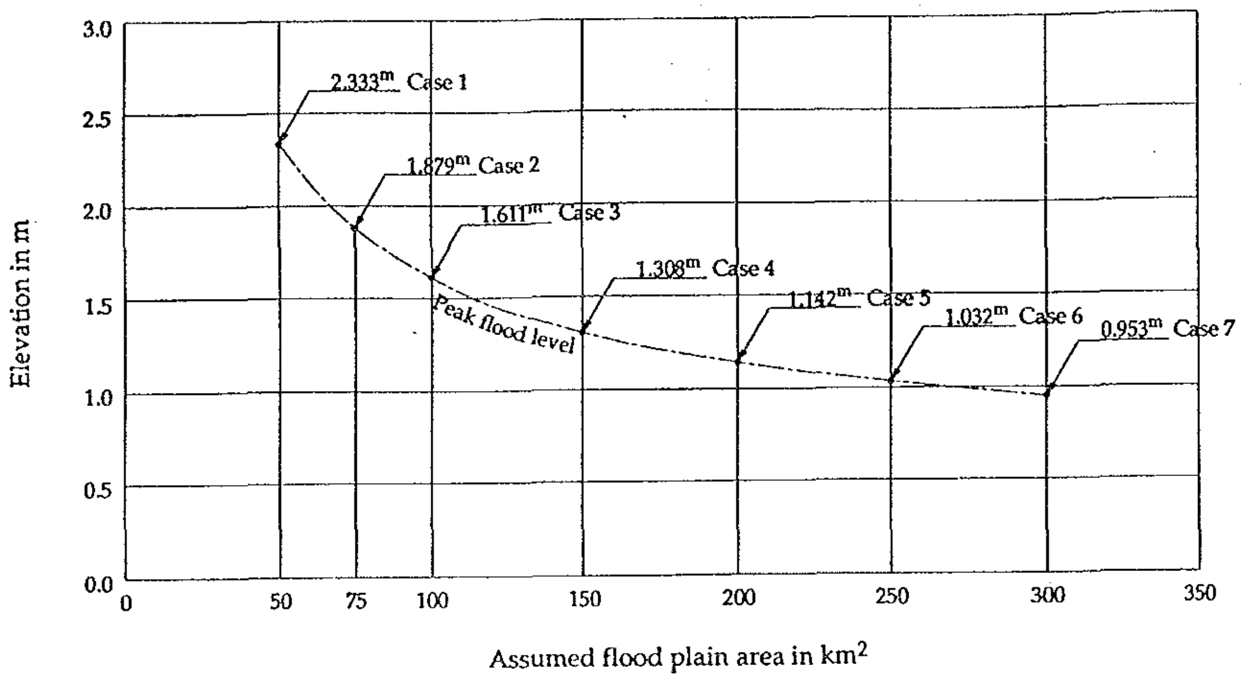


Fig. 6 - 13 RELATIONSHIP BETWEEN ASSUMED FLOOD PLAIN AREA AND PEAK FLOOD LEVEL AT BRIDGE

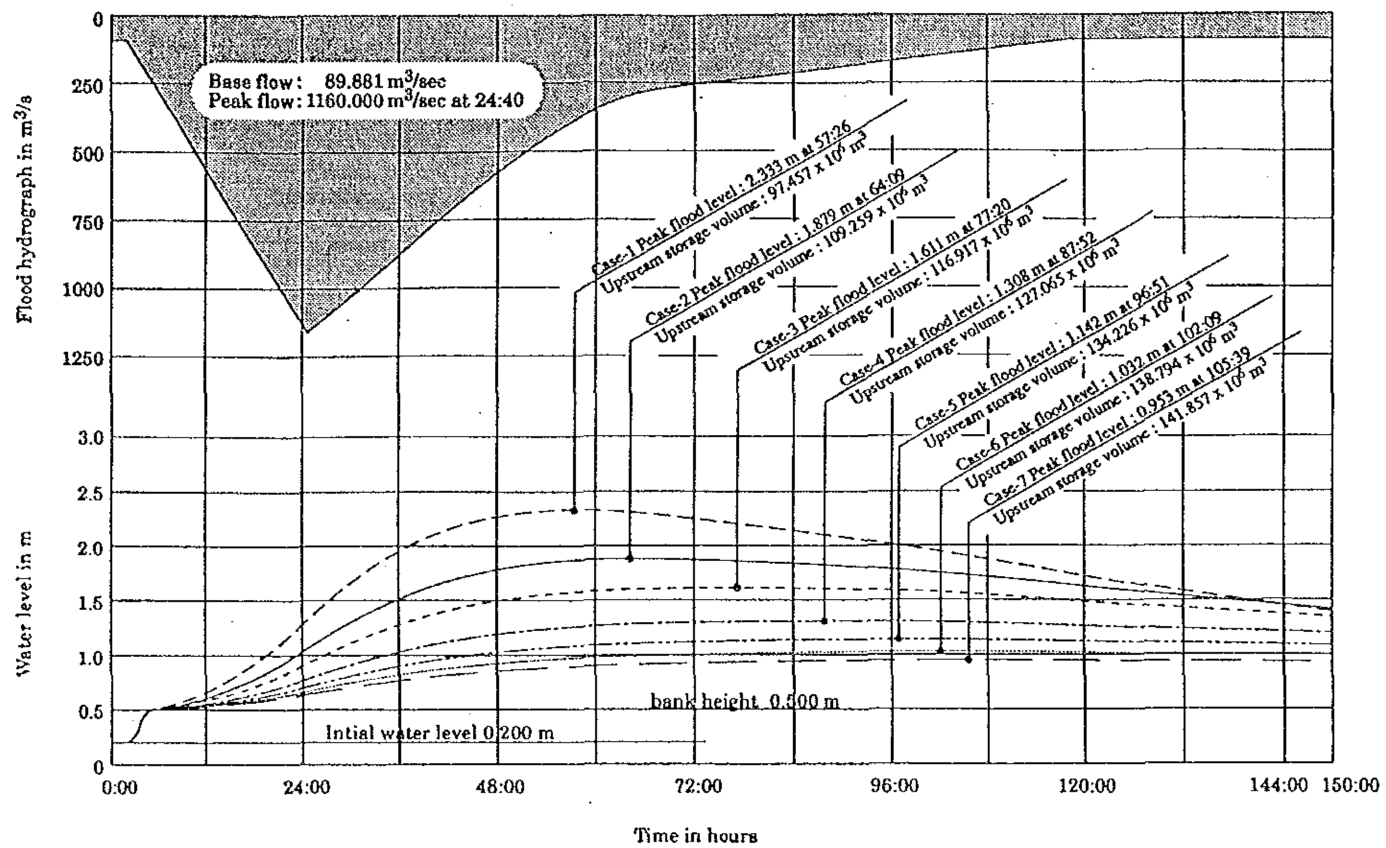


Fig. 6 - 14 TRACE OF WATER LEVEL AT KAPURI RIVER BRIDGE SITE