

Fig. 7. Analysis of the air wave effect on a building area.

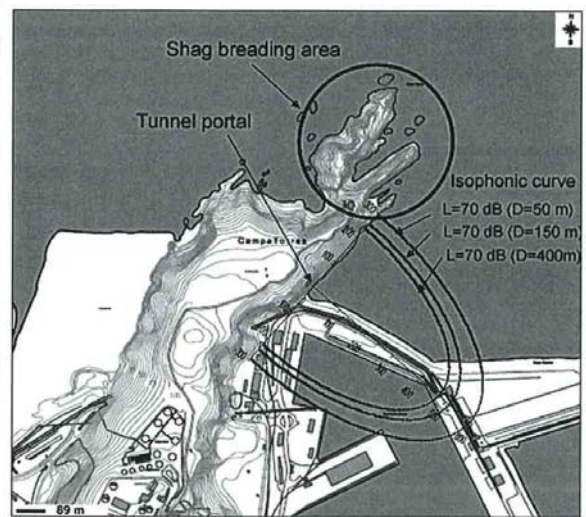


Fig. 8. Analysis of the air wave effect on Shag breeding habitat.

Marmaray

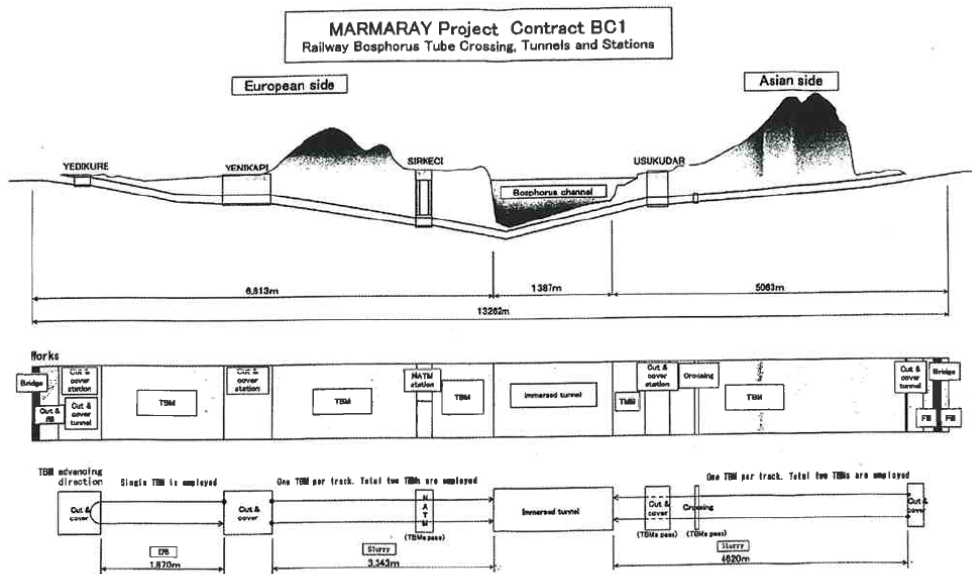


Fig. 5. Sectional views and tunnelling methods of Marmaray project (Marmaray Project Contract).

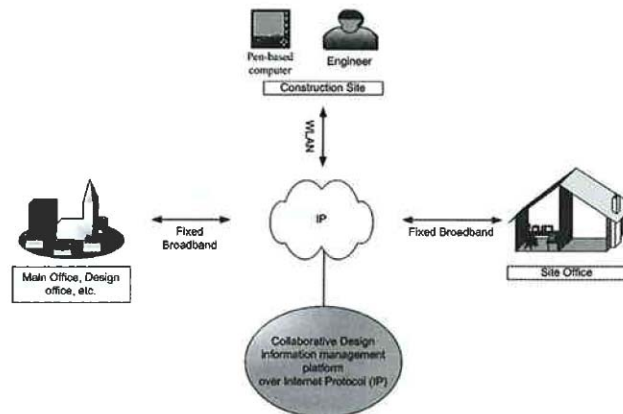


Fig. 7. Proposed system of data flow to/from site.

1/20

0.4m

10.0m)

4.5, 5.5, 6.5, 8.5cm)

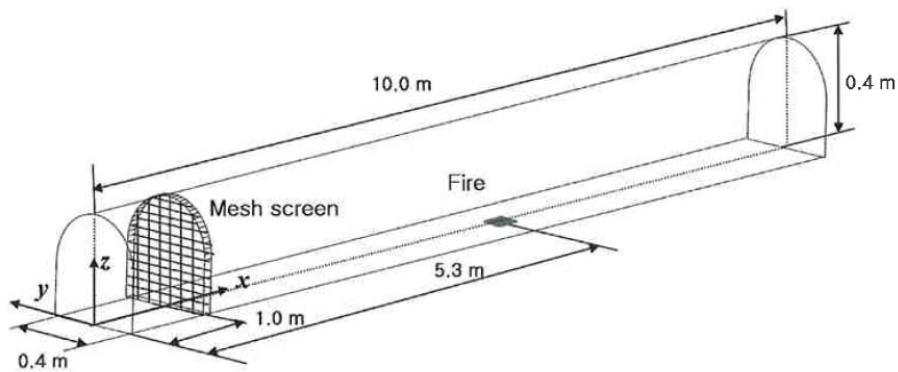


Fig. 1. The configuration and dimension of reduced model tunnel.

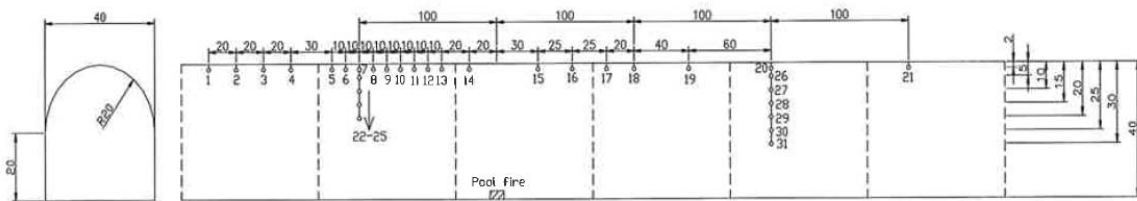


Fig. 2. Schematic view of the thermocouples arrangement.

10

30km

1970

3

- 1)
- 2)
- 3)

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In situ TBM penetration tests and rock mass boreability analysis in hard rock tunnels (pp.303~316)

Boreability TBM TBM (Shield friction test)
TBM
TBM
50kN
0.5 1.0mm/rev

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Influence of rock brittleness on TBM penetration rate in Singapore granite (pp.317~324)

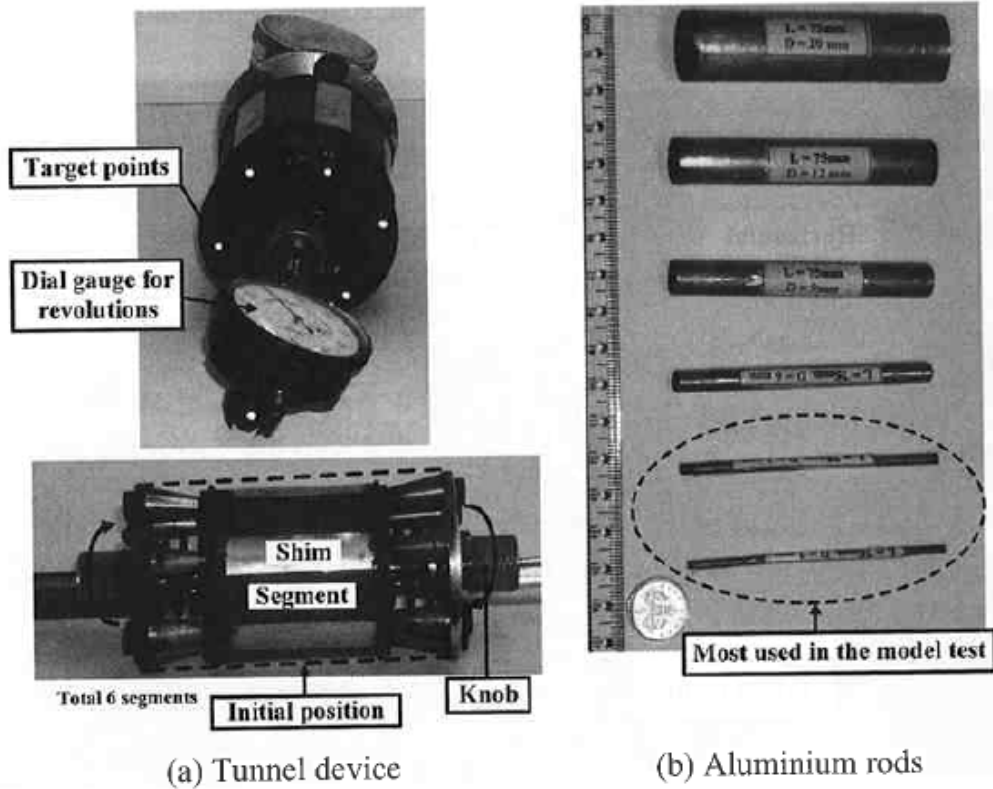
TBM
TBM
(Bukit Timah granite)
100
UDEEC

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Influence zones for 2D pile-soil tunnelling interaction based on model test and numerical analysis (pp.325~342)

2

Fig.5(b) Fig.5(a) Fig.8



(a) Tunnel device

(b) Aluminium rods

Fig. 5. 2D model tunnel device and aluminium rod materials.

Table 3
Proposed classification for squeezing potential in tunnels

Class number	Squeezing Level	SI
1	No squeezing (NS)	$SI < 1.0$
2	Light squeezing (LS)	$1.0 < SI \leq 2.0$
3	Fair squeezing (FS)	$2.0 < SI \leq 3.0$
4	Heavy squeezing (HS)	$3.0 < SI \leq 5.0$
5	Very heavy squeezing (VHS)	$5.0 < SI$

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Mechanical behavior of a twin-tunnel in multi-layered formations (pp.351~362)

2 (Fictitious stress method) 3 Fig.4 2 Fig.7

&

2 4%

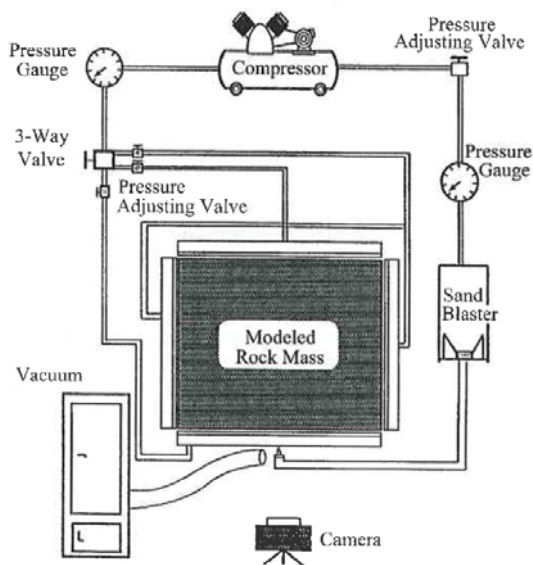


Fig. 4. The equipments and setup of the tunnel model test.

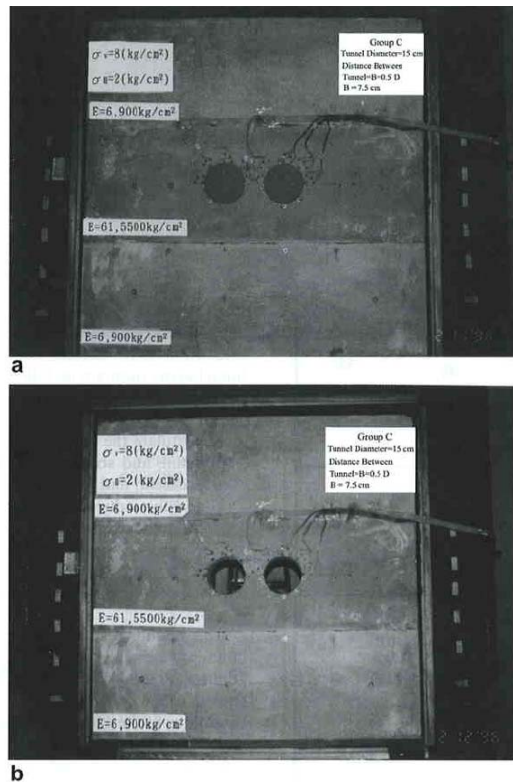


Fig. 7. Model test of twin tunnels with instrumentations before (a) and after (b) excavation.