



KCRC WEST RAIL PROJECT DB 320 KWAI TSING TUNNELS

SCOPE OF WORKS : Water drains and Complementary grouting treatment in cross passages CP 1,CP 2 & CP 3

MAIN CONTRACTOR :

Dragages et Travaux Publics - Zen Pacific JV

EMPLOYER :

KCRC

PROGRAMME :

March/June 2001

STAFF :

V.DOUET

S.DECAUX

Alan SIN (Grouting Foreman) + 5 p

MAIN EQUIPMENT :

1 Pentafor drill rig with Montabert hammer

64 and 48 mm button bits

1 grouting frame HD with pump GP – 60 E

Single and Double Petrometallic packers

QUANTITIES :

58 drilled holes from inside the tunnel

320 lm drilled,incl. 60 m of control and probe holes

108 lm of TAM installed

7682 lts of B/C grout

3 tons of cement including Microfine cement

11 655 lts of chemical grout (hard gel)

MIXES USED ;

B/C/W 35/350/870

Microfine cement 100 kgs,Water 100 lts

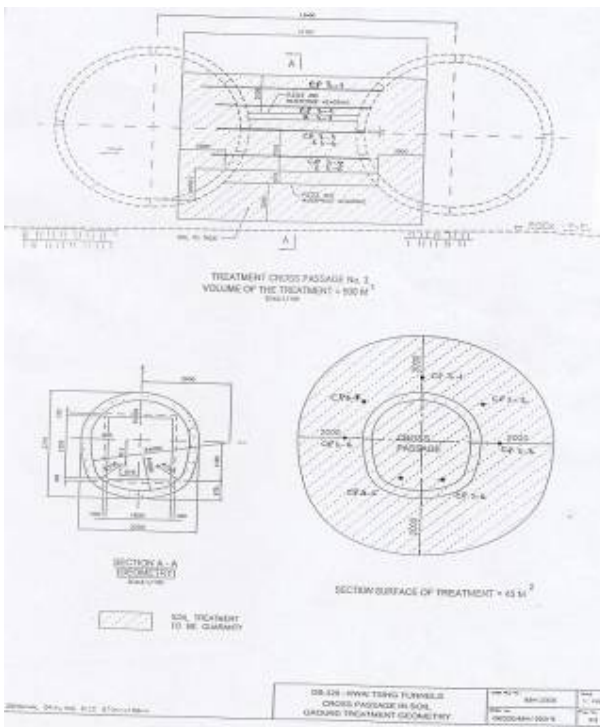
Hard gel :100 lts water,20 lts silicate,4.5 kgs reactive



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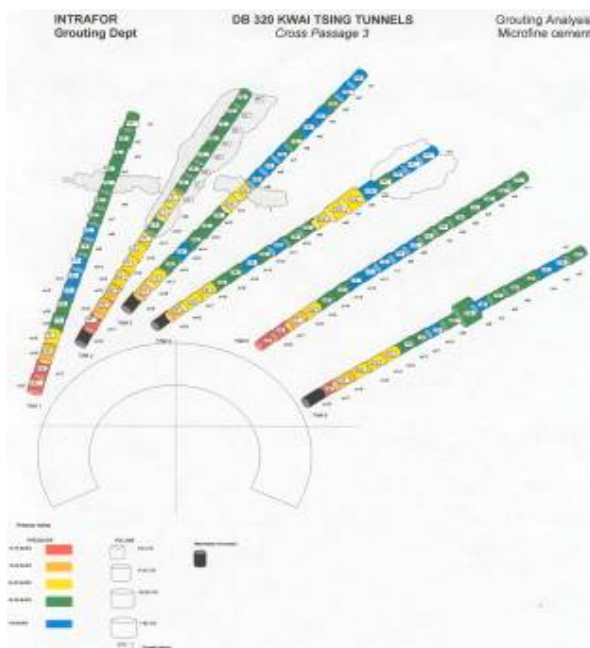
In order to check the efficiency of jet grouting treatment realized from the surface, drains had to be performed from inside the tunnel around the grouted areas.

Depending on the results, additional grouting treatment was done by TAM grouting, using standard bentonite/cement grout, Microfine cement and chemical soft gel.



ANALYSIS OF THE RESULTS

Results of the treatment have been analyzed by close study of grouting results and realization of probe holes and water tests.



TAM layout with incorporation of volumes injected and colour representation of pressures shows clearly the soft or decompressed areas where treatment needs to be carefully undertaken.