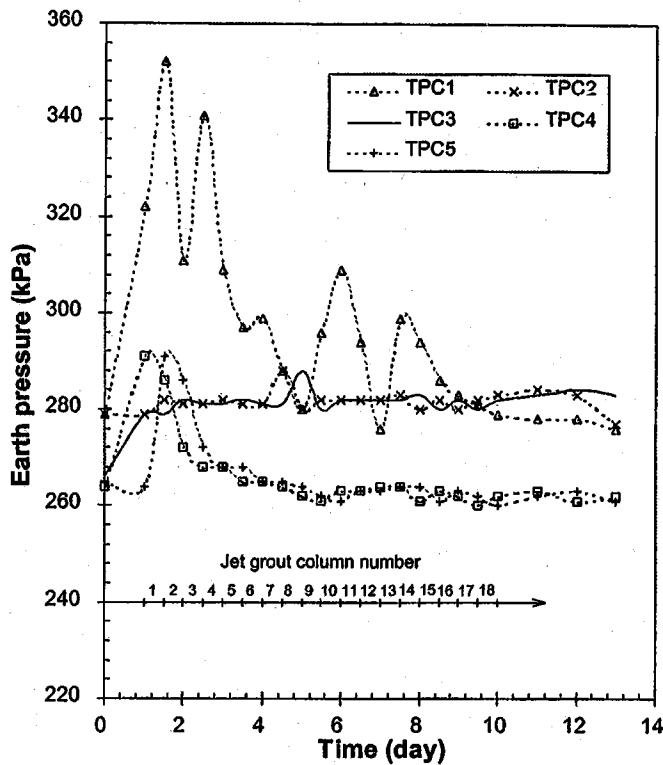


Fig. 8. Effects of jet-grouting trial on changes in lateral earth pressure of adjacent soils.



piezometers P1, P5, and P6, located farther away from the jet-grouted area, the piezometric variations were minimal. The relationship between incremental pore pressure (Δu) and incremental total soil pressure (ΔP) has been plotted in Fig. 10, which suggests an approximately linear relationship between Δu and ΔP . Figures 8 and 9 show that the magnitude of the increase in Δu and ΔP was greatest at the beginning of the jet-grouting trial and then decreased with time. At the end of the jet-grouting trial, Fig. 9 shows that, except for those at P3, the piezometric levels for all piezometers returned to their initial values, which were slightly higher than the initial values. These results show that the jet-grouting trial only caused a temporary increase in the piezometric level.

Bending moments

The bending moments in a diaphragm wall can be obtained from the product of wall curvature and stiffness. The wall curvature can be deduced through double differentiation of the wall inclinometer reading. Details of deducing wall-bending moments from wall inclinometer readings have been reported by Poh (1996) and Poh et al. (1997).

As described earlier in this paper, jet-grouting caused the wall to deflect. This resulted in a change in wall curvature and hence a change in wall bending moments. Typical profiles of bending moment versus depth are shown in Fig. 11. The variation of the maximum negative and positive wall-bending moments with time during the jet-grouting trial are shown in Fig. 12. These bending moments were deduced from the readings of wall inclinometer I6 (wall panel 4). The wall bending moment is defined as positive when the tension face of the wall is on the excavation side. The jet-grouting

Fig. 9. Changes in piezometric level during jet-grouting trial.

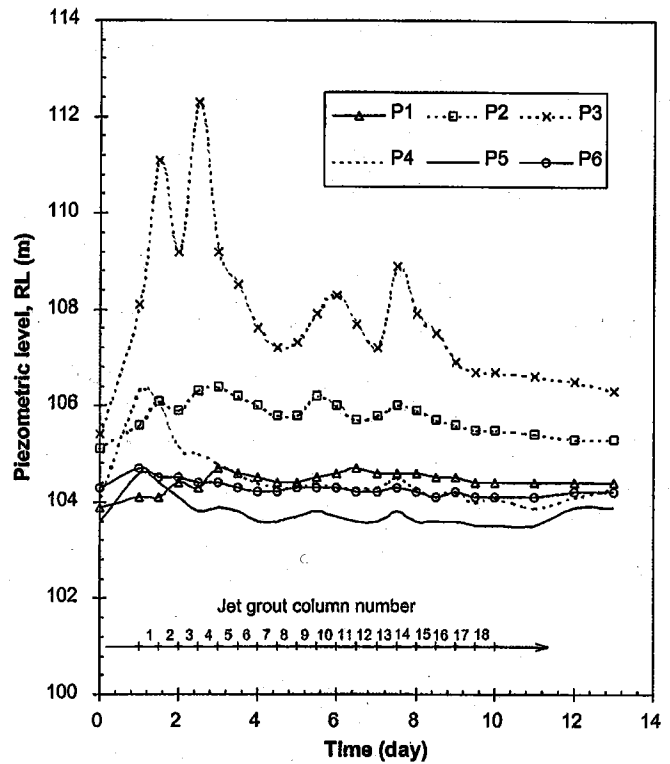
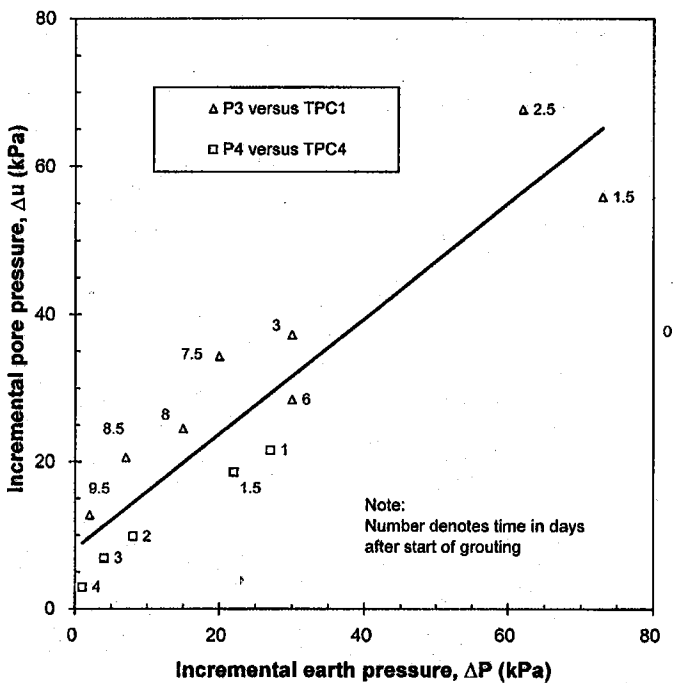


Fig. 10. Relationship between incremental pore pressure and lateral earth pressures during jet-grouting trial.



caused the wall to deflect backward (toward the soil side). The deflected shape of the wall (as shown by inclinometer I6 in Fig. 4) suggests that the fill layer provided restraint against the backward movement, resulting in a change in the curvature of the wall and hence a maximum negative bending