FAILURE OF 2 METRE DEEP EXCAVATION FOR PILE CAP

Type of building work

This involves construction of a 4-storey flatted factory (with no basement) located between two existing single-storey terrace houses which were founded on small diameter bored piles.

What went wrong

Timber planks were used to support a 2m deep excavation to construct a pilecap adjacent to an existing single-storey house. The ground condition was poor, comprising of soft marine clay and the timber planks to support the excavation was shoddily done.

Figure 1: Shoddy timber planks to support excavation for pile cap

The timber planks were not effective in resisting the earth pressure and gave way, resulting in movement of the marine clay beneath the adjacent house. The ground movement cracked the small diameter bored pile supporting the adjacent house causing the entire front section of the adjacent house to collapse.

Figure 2: Cracking and collapse of adjacent single-storey house .

Learning points

a) Every construction project, whether big or small should be given due attention.

b) Properly designed temporary earth-retaining structures should be provided to protect the sides of the excavation, even for shallow excavation. The design should take into consideration the effects of inclement weather and presence of foundation of existing buildings.

c) Extra precautionary measures should be taken when working close to existing building.