Fig. (1.33-c) Soldier Piles Shoring System
Method Statement for Different types of Shoring Systems

b) Structural bending moments, shear forces and prop or tie forces should be derived from the equilibrium calculations using design earth pressures and water pressures. The ultimate limit state and serviceability limit state should be the same as those used for the overall equilibrium and deformation calculations. All Stages of constructions to be studied as per Fig. (1.34).

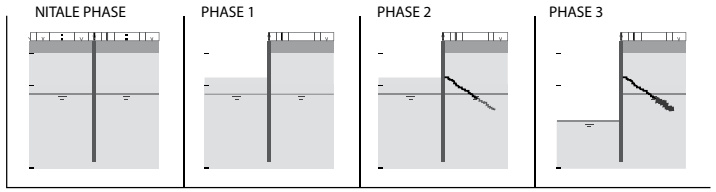

Fig. (1.34): Shoring Stages of Construction

c) The shoring works should be designed as a rigid vertical system subjected to the earth, water pressures and support reactions taking into account the staged construction.

d) The maximum retained height is 15.00 m (BS 8002: 1994, Section 1.1). Advice from the shoring works specialist is required in case of excavation depth of 15.00 m is required.

e) The excavation and support systems should be designed to ensure that the settlement or lateral yield of the surrounding ground surface is within acceptable limits particularly where the excavation adjoins roads where drainage, electricity services are located. The maximum lateral displacement permitted for the shoring systems is 40 mm.

f) The minimum surcharge load is 15 kN/m2 and value of 15 kN/m2 should be added for each neighbouring existing plot floor when the neighbouring foundation is a raft. Traffic surcharge load to be considered 20 kN/m2 at roads sides.

g) Cantilever shoring systems are suitable for moderate height only. The maximum height of such sheet pile cantilever walls is 5.00 m. (BS 8002: 1994, Section 4.4.2.).

h) Minimum factor of safety of fixation and embedded depth should be taken as 2.00.

i) Bored piles contiguous or secant piles are very preferable when the shoring works is closed to an existing foundation. Difference of water levels in front and back to shoring system should be taken into consideration in case of secant piles, sheet pile wall or diaphragm wall after dewatering.

j) Maximum spacing between soldier piles is 2.50 m and maximum spacing between tie back anchors is 4.00 m.

k) The design earth pressure are derived from design soil strengths using the usual methods of elasto-plastic behaviour, with earth pressure coefficients given in BS 8002 : 1994, Section 1.3.9.

l) In checking the stable equilibrium and soil deformation, retaining walls should be designed assuming a depth of unplanned excavation in front of the wall not less than 10 % of the total height retained for cantilever walls or of the height retained below the lowest support level for propped or anchored walls. The minimum unplanned depth is 0.50 m ((BS 8002: 1994, Section 3.2.2.2).