and / or rock materials are to be provided, in accordance to related technical guidelines and local requirements.

1.3.3   **BACKFILL MATERIALS AND COMPACTION CRITERIA:** The material used for backfilling purpose (Maximum 2.00 m thickness) shall be of selected fill composed of sand/granular mixture free from organic materials or other deteriorates substances. The Plasticity Index of the backfill material shall not exceed 10%. The maximum particle size of backfill material shall not exceed 75m and the percentage passing 75m Sieve shall not exceed 20%. The organic materials content should not exceed 2% and the water soluble salt content shall not exceed 5%. The backfill materials shall be placed in layers of thickness 150mm to 250 mm and to be compacted to not less than 95% of the maximum dry density. The specialist must state whether the material available in site could be used for general backfilling or not after performing the necessary analysis. Sand cone test may be carried out to determine the degree of compaction while the plate load test (as per ASTM D1195/D1195M–09) also is an acceptable test where the bearing capacity corresponds to the allowable settlement will be confirmed.

1.3.4   **RETAINING STRUCTURES:** The specialist must recommend the most preferable shoring system, Fig. (1.9), (if required) as well as the soil parameters to be adopted for the design as per Table (1.3).
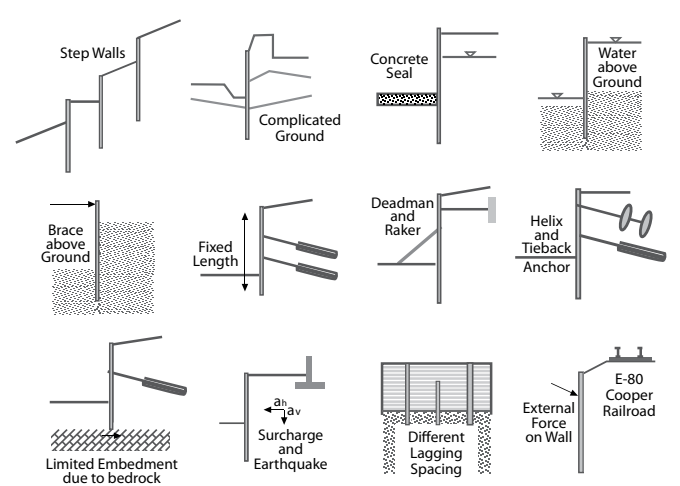

Fig. (1.9): Shoring Systems

1.3.5   **DEWATERING:** Care should be taken during dewatering to ensure that fines are not removed during pumping since this could result in unpredicted settlements of the surrounding ground and associated structures.

-    Fig. (1.10) Indicates Surface Dewatering System (French Drains).

-    Fig. (1.11) Indicates Well Point Dewatering System

-    Fig. (1.12) Indicates Deep Wells Dewatering System.

-    Fig. (1.13) Shows the Well Pit Details during running dewatering and after dewatering

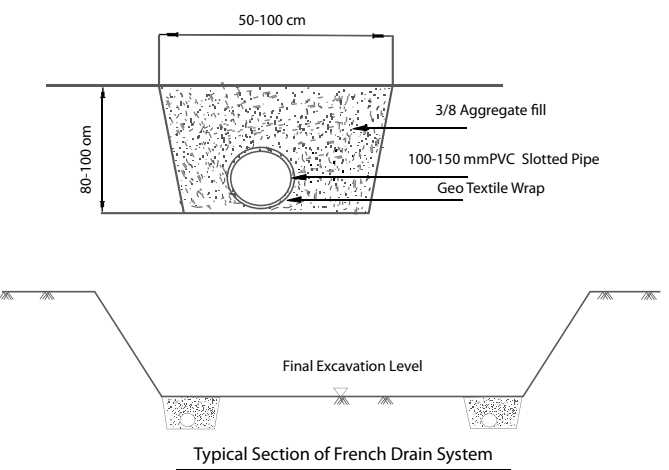-   Fig. (1.14) Indicates the Details of Dewatering Deep Well

Fig. (1.10): Surface Dewatering System (French Drains)