

#### (4) GROINS STABILITY - EGYPT (2006) – Slope Stability of Large Size Groins

The project location is to the east of Alexandria at Burrullus and owned by General Authority for Shores Protection, Ministry of Irrigation and Water Resources. The project target is to control erosion and sedimentation of the sea where the rate of erosion had reached a 30 m per year. Nine groins were designed with 5 kilometers apart, where eight of them were successfully constructed. The last groin location geological profile has a thick shallow layer of soft clay that hindered the work progress in excavation and up fill. The design of the groin cross section shape has been altered to increase the safety factor against rotational sliding which has been dropped below coded value by the presence of the soft clay layer.

