5.2. Context of Subsurface Drainage in Abu Dhabi

The application of subsurface drainage is highly dependent on the unique set of variables relating to the physical and human environment of the Emirate of Abu Dhabi. A summary of the most important conditions include:

- Topography – largely flat landscape with characteristic sand dunes rising gradually from the coastal plain inland, and with hilly/mountainous areas to the east and south of Al Ain;
- Climate – low annual rainfall of high intensity and high evaporation rates;
- Hydrogeology – shallow water table at the coast and more than 150 m below ground level far inland, low groundwater recharge rate and very poor groundwater quality; and
- Hydrology – generally there are few hydrological features, with exception around the Al Ain area.

Appropriate responses to the two general waterlogging situations in Abu Dhabi include:

shallow and saline water table renders the (Sabkha) soils unproductive as a result of deposition of migrating salts on the surface. Soils are heavy and flocculated as a result of the presence of Sodium.	**subsurface drainage**
soils of good quality overlay a heavy and confining layer that causes ponding of water in topographical lows.	**subsurface drainage**

Importantly though, each situation should be examined on a site by site basis, including existing utility services, and decisions made on the most appropriate drainage system for the local conditions encountered.

Where alternative responses to subsurface drainage are proposed, the Consultant shall discuss and agree with DMAT the justification.