The Yas Island Development comprises a Ferrari theme park, a Formula One racetrack, amusement rides and luxury hotels. The southern part of the island, an area which has seen significant erosion, had been a ladies-only beach. The island’s soils comprise 90% fine sand and 10% Type 1.

Two new marinas have been constructed; one of which, the Racetrack Marina, will allow visitors to moor their yachts conveniently close to the Formula One action.

This marina was constructed by excavating a basin to a depth of 4m below sea level, leaving a temporary earth dam on the seaward side. The quay walls were constructed along the other three sides of the excavation using pre-cast concrete units. The temporary dam was eventually breeched to allow flooding and creation of the basin.

HPS5 was used to stabilise the backfill to the 6m high marina walls. This geotextile filter was selected as it is manufactured from black polypropylene fibres – polyester was thought to be inappropriate being so close to concrete & salt water. HPS5’s high elongation, its thickness & its robustness are prerequisite properties for filters deployed beneath large rock.

Client: Aldar
Contractor: Halcrow International
Product: GEOfabrics HPS 5
Quantity: 140,000 m²
Product functions: Filtration and Separation
Lengths of HP55 were anchored below the lowest course of blocks and these were laid up the face of the existing 1:2 slopes at the rear of the walls. The resulting void was backfilled with a free-draining 200-500kg stone. This detail would prevent the build-up of hydrostatic pressure behind the walls and the geotextile would prevent leeching of soil particles.

The Southern marina was formed by a pair of Crab claw breakwaters. These were constructed by forming 1m high bunds covering them with HP55 & placing 0.5t rock armour directly on top of the geotextile. This will act as a filter/separator allowing the passage of water whilst retaining bund soil particles.

The whole development was completed in 2009, with the F1 track to be opened in October the same year. It is now a showcase date in the calendar of ever F1 season.