ST ANDREWS ROYAL & ANCIENT GOLF CLUB

FIFE, SCOTLAND, UNITED KINGDOM

Slope Protection

Problem

St Andrews, one of six championship golf links which make up the world famous St Andrews Golf Complex, is just one of the several seaside golf links which are currently under threat of losing parts of the course to the sea. Global warming and rising sea levels combined with damage caused by unusually strong westerly winds has caused the coastal dunes to retreat by several metres, resulting in significant amounts of sand being blown onto the greens. If unchecked this could eventually change the contours of the 105 year old fairways and some holes could be lost forever.

Course managers, the St Andrews Links Trust implemented plans to carry out major improvement work to arrest coastal erosion and prevent any further retreat of the Eden estuary. The proposed solution was further complicated by the sensitive nature of the environment. The dunes are designated a Site of Special Scientific Interest (SSSI) and Fife Council required a full feasibility study to be undertaken before granting planning permission.

Solution

The approved scheme was designed by HR Wallingford, to include both ‘hard’ and ‘soft’ engineering solutions and the contract was supervised by Fraser Smart Architects of Leven, near Fife. Maccaferri Construction was awarded the contract for ‘hard’ engineering, including the construction of polymeric coated woven gabions, following an open competitive tender. Work commenced on site in December 2000.

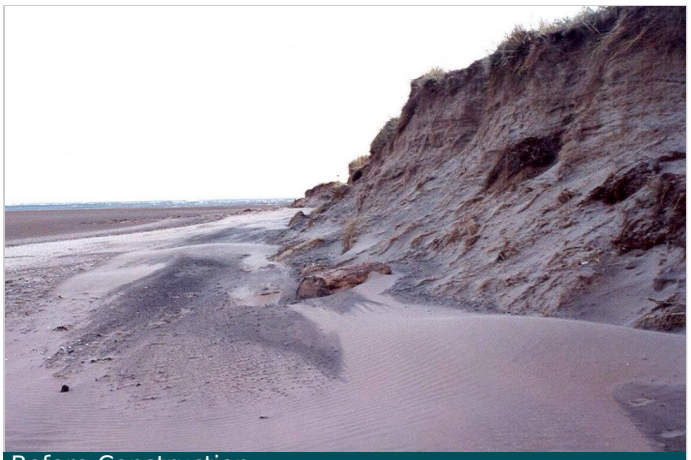
The solution entailed a 0.5m deep Reno mattress revetment with a 0.5m high wave wall on top of the crest of the revetment along a 100m length of the most exposed sand dunes at the mouth of the River Eden estuary. Construction was undertaken by Maccaferri Construction using Maccaferri polymeric coated flexible woven mesh gabions and mattresses. These were selected over Maccaferri’s welded mesh gabion units as welded gabion units (regardless of wire diameter) are not appropriate for coastal works or where differential settlement and wave action can be expected.

Client: St Andrews Link Trust
Designer / Consultant: Maccaferri Construction
Contractor: HR Wallingford
Products used (Qty.)

- Gabions 600m3

Date of construction: 12/2000 - 06/2001

Google Maps Google Earth



Before Construction

During Construction (High Tide)

During Construction (Low Tide)

Vegetation established

17 Years on since construction had finished

Growth over the Gabions

Maccaferri Ltd:
Tel: (+44) 1865 770555
Rep. Of Ireland: Tel: (+353) 18851662
Email: sales.uk@maccaferri.com
info.uk@maccaferri.com