

**Beach Protection with Innovative Geotube® and Geobag Solution at Meritus Pelangi Beach Resort, Pantai Cenang, Langkawi, Malaysia.**



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## Project Data

<b>Project</b>	: Beach Protection with Innovative Geotube® and Geobag Solution at Meritus Pelangi Beach Resort, Pantai Cenang, Langkawi, Malaysia.
<b>Client</b>	: Meritus Pelangi Beach Resort
<b>Contractor</b>	: Gateway Structures Sdn Bhd
<b>Year of construction</b>	: March 2018 to June 2018
<b>Material</b>	: TenCate Geotube Composite GT650MC, Geobag Composite GB450MC4, Scour Apron

## Overview:

The Meritus Pelangi Beach Resort is located at Pantai Cenang, Langkawi. Pantai Cenang is the most developed beach on the west coast of Peninsular Malaysia. However, the shoreline of the Meritus Pelangi Beach Resort has experienced severe erosion during the Southwest Monsoon since Year 2016.

The conventional type of sand bags was used but not effective against erosions. They were displaced, disintegrating as they were weak against strong wave attack. The beach front had narrowed due to relentless waves attack. The beautiful views and long stretches of sand were destroyed as a result.



The beach front has been narrowed due to erosion

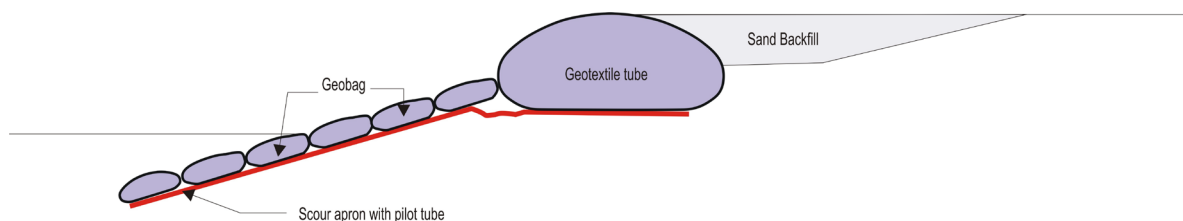


Disintegrated existing conventional plastic sandbag

## Solution:

To rectify this problem, the Resort evaluated various erosion protection methods. After extensive studies, the solution provided by Tencate with a combination of composite Geotube® GT650MC and Geobag has been selected due to their overall cost effectiveness and ease of filling and handling.

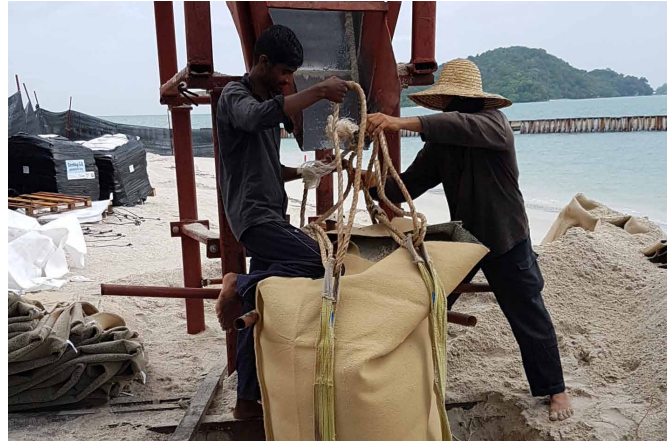
## CROSS SECTION DRAWING



## Beach Protection with Innovative Geotube® and Geobag Solution at Meritus Pelangi Beach Resort, Pantai Cenang, Langkawi, Malaysia.

### Installation of Geobags and Scour Apron:

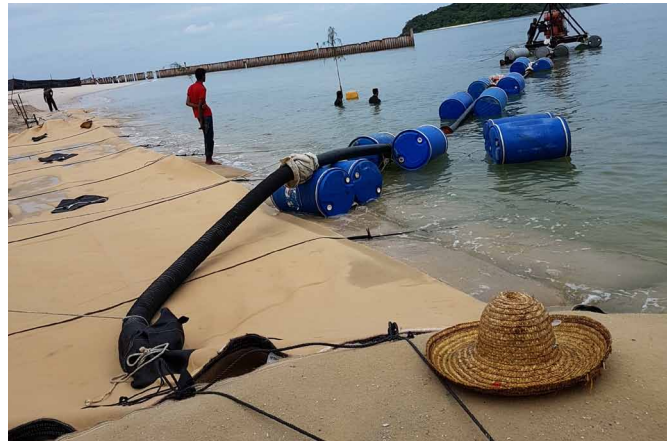
Scour aprons were deployed and anchor tubes were filled before placing the Geotube® unit. Prior to installation of the Geobags the section of shoreline to be repaired was trimmed back. The filled Geobags were then laid in an overlapping shingle style beginning at the toe of the embankment, to ensure maximum stability and protection of the riverbank during high water flows. To facilitate efficient filling, we were using a filling frame. Polyester lifting straps were then used to lift and position the bags in place.



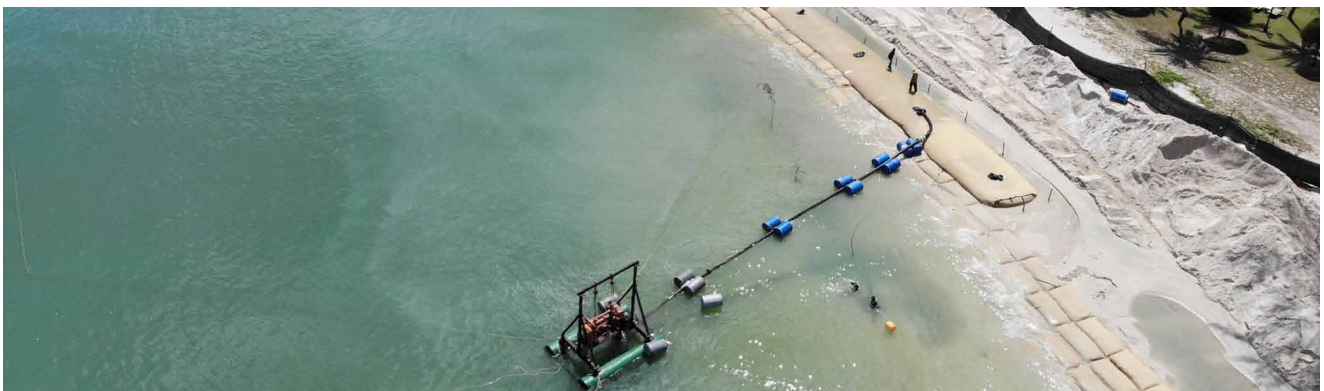
*Geobag installation in progress*

### Installation of Composite Geotube®:

The composite fabric used for the Geotube® unit is made in beach sand colour. It is extremely robust with the ability to entrap sand within the fabric structure. The net result is a Geotube® System that not only is stable against waves and storm surges but also able withstand weathering and sunlight exposures over the long term. After the site was prepared the Geotube® GT650MC unit was laid out. Sand was hydraulically pumped from the sea directly into the Geotube® unit through one of the fill ports until the design height of 1.24 m is reached.



*Sand and water slurry are used to fill a Geotube via pumping*



*Geotube® installation in progress using hydraulic filling method*

*Geotube® is a registered trademark of TenCate.*

*Further details of this application and products can be obtained by contacting your nearest TenCate Technical Support Office.*

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# Geosynthetics Solutions for Engineering Structures

## Malaysia

TenCate Geosynthetics Asia Sdn Bhd  
(264232-U)  
14, Jalan Sementa 27/91  
Seksyen 27, 40400 Shah Alam,  
Selangor, Malaysia  
Tel : +60 3 5192 8568  
Fax : +60 3 5192 8573

## Philippines

TenCate Geosynthetics Asia Sdn Bhd  
Philippines Representative Office  
Unit 1803 West Avenue Suites  
124 West Avenue Barangay Philam  
Quezon City, Philippines 1104  
Tel : +63 426 8834 / 426 8835  
Fax : +63 518 9028

## India

Tencate Geosynthetics India Pvt Ltd  
Vishwasri GL, Plot No 5, IInd floor,  
Vijay Nagar Colony,  
Behind Secunderabad Club, Picket,  
Secunderabad – 500003 Telangana,  
India  
Tel : +91 40 2770 1271 / 1273  
Fax : +91 40 2770 1276

*info.asia@tencategeo.com*

[www.tencategeo.asia](http://www.tencategeo.asia)

## Thailand

TenCate Geosynthetics (Thailand) Ltd  
169/98 Serm Srapi Bldg, 3rd Floor,  
Rachadapisek Road Dindaeng,  
Bangkok 10400, Thailand  
Tel : +662 692 6680  
Fax : +662 692 6679

## Indonesia

TenCate Geosynthetics Asia Sdn Bhd  
Indonesia Trade Representative Office  
Graha Simatupang Tower ID 4th Floor,  
Jl Letjen TB Simatupang Kav 38  
Jakarta 12540, Indonesia  
Tel : +62 21782 8963  
Fax : +62 21782 8664

## Australia

TenCate Geosynthetics Asia Sdn Bhd  
Australia and New Zealand Representative Office  
14/328 Handford Road,  
Taigum, Qld 4018  
Australia  
Tel : +61 43255 9266

## Singapore

TenCate Geosynthetics Singapore Pte Ltd  
67B, Tuas South Ave 1,  
Singapore 637581  
Tel : +65 6266 0188  
Fax : +65 6266 0182

## Myanmar

TenCate Geosynthetics Asia Sdn Bhd  
Myanmar Representative Office  
No. L-108 Ground Floor,  
Manaw Hari Avenue Baho Road,  
Ahlone Township, Yangon, Myanmar.  
Tel : +951 1122 4551