TENCATE Geotube®

PROJECT REFERENCE

Construction of Artificial Island using Geotube® GT1000
Incheon Grand Bridge, Korea

Project Data

Project	:	Artificial Island, Incheon Grand Bridge, Incheon, Korea
Application	:	Reclamation of artificial island
Products Used	:	Geotube® GT1000

Overview

The Incheon Grand Bridge project is a Mega-bridge project connecting Incheon International Airport with Songdo City in the Incheon Free Economic Zone. As an alternative to constructing the bridge piers over open water using heavy marine equipment, it was proposed to construct an artificial island reclaimed from the sea as a temporary platform to facilitate construction of the piers using land based equipment. The artificial island option was shown to be significantly more economical than alternatives such as sheet piles, rock dykes, etc.

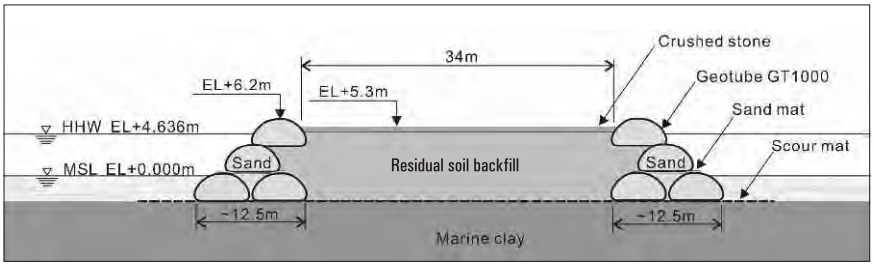
Construction

Geotube® GT1000 from TenCate were chosen for constructing the edge dykes which were then filled with residual soil to form the temporary platform. The Geotube® containers used comprised a combination of 3m, 4m and 5m diameters, with lengths varying between 15 to 60m. The tubes were stacked in tiers up to a height of about 7m above the soft estuarial deposits. At the shallow end of the construction the tubes were installed approximately –1.0m below sea level, and at the deeper end were installed about –2.8m below sea level. In total more than 14km of Geotube® engineered tubes were used on the project.

Filling of the tubes was undertaken with sand delivered by barges to the site. The sand was mixed with seawater to form a slurry and pumped into the Geotube®. The area within the confinement of the tubes was then filled with residual soil, completing the platform.

Installation of the Geotube® began in April 2006 and at the peak of construction, three installation equipment set-ups were deployed filling three tubes at a time. The full 14km of filled tubes was completed by the end of 2006, ahead of schedule and within budget.

This project illustrates the significant cost and construction time savings achievable by using Geotube® engineered tubes as an alternative to conventional marine construction techniques.



Cross section of the artificial island

Overview of the Geotube® working platform

Geotube® GT1000 along the edge of the reclaimed platform

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