

MTC PRIORITY PROJECTS WORKS

ABU DHABI - ABU DHABI - U.A.E.



TYPE OF PROJECT
Slope Protection

YEAR OF CONSTRUCTION
2023

CLIENT
Abu Dhabi Airports

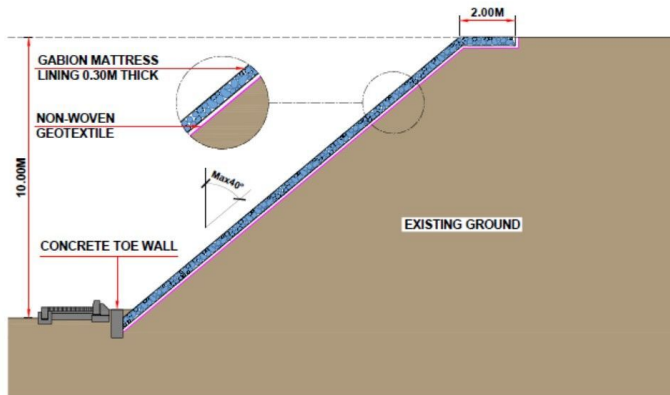
CONTRACTOR
Asqalan Construction & Development LLC

DESIGNER
DAR

PROD. RELATED
Reno Mattress Plus (Reno Matress : 6,250 M2)

Challenge

The embankment slopes within the Abu Dhabi airport premises have been experiencing severe erosion, primarily due to the steepness of the slopes and the use of loose fill material. The client was looking for a permanent slope protection solution that would be both robust and flexible enough to withstand these challenges. The solution needed to be capable of accommodating minor slope deformations that could occur over time due to environmental factors, such as wind, rainfall, and the natural settling of the fill material. In addition to providing effective erosion control, the solution had to be suitable for the steep slope conditions, which added to the complexity of the project. Space constraints at the site further limited the available options, requiring a design that could be implemented within a confined area. Traditional methods, which typically require more space, were not feasible. Therefore, the client sought an innovative, long-lasting solution that would not only prevent further erosion but also offer the flexibility to adapt to potential minor shifts in the slope without compromising its protective capabilities.



Section of Reno Mattress lining



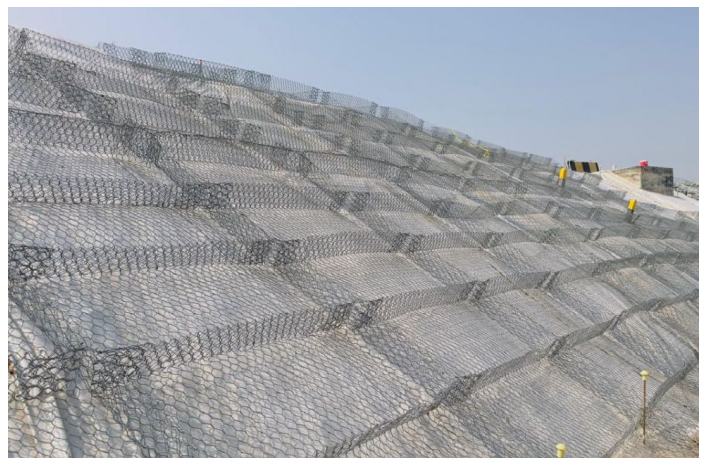
Slope before protection

Solution

As the pioneer in erosion control and slope protection works, the contractor turned to Maccaferri Middle East to propose a suitable solution for the erosion issues at the Abu Dhabi airport premises. Given the need to address the steep inclination of the slopes, ensure flexibility in the solution, and achieve a long-term design life, Maccaferri proposed lining the slope with Reno Mattress. The proposed system included a 30 cm thick Reno Mattress installed over a geotextile layer on the slopes. The steel wire used in the Reno Mattress was coated with a superior Galmac and Polimac coating to ensure a minimum design life of 120 years. One of the critical challenges was ensuring the sliding stability of the mattress layer along the steep slopes, which had inclinations of up to 40 degrees. To address this, Maccaferri utilized their in-house design software to assess and optimize the stability of the installation. The entire installation was completed in just three months, with an impressive average productivity rate of 100 square meters per day.



Slope before protection



Reno Mattress laid along slope



Stone filling within Reno Mattress



Completed Reno Mattress Lining



Steep slope protected with Reno Mattress



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