

CLOSING OF THE SERMONDE LANDFILL: GEOSYNTHETIC SOLUTIONS

SERMONDE, VILA NOVA DE GAIA, PORTUGAL



TYPE OF PROJECT
Lining Systems - Capping

YEAR OF CONSTRUCTION
2025

CLIENT
SULDOURO

CONTRACTOR
DRI

DESIGNER
FUTURE PROMAN, S.A.

PROD. RELATED

Drainage Geocomposites (75000 M² MacDrain W 1061), Biaxial Geogrids (45000 M² MacGrid WG40 / WG20), Nonwoven Geotextiles (20000 M² MacTex H2800)

Challenge

The Sermonde landfill site in Vila Nova de Gaia began operating in 1999 as a facility for receiving municipal solid waste. During its 22 years of operation, it served the combined population of Vila Nova de Gaia and Santa Maria da Feira, receiving a total of 2,472,880 m³ of waste.

In 2021, after reaching its maximum capacity, waste disposal was halted and technical closure works began. The interventions included topographical surveys,

characterisation studies and adaptation measures to ensure safe sealing. In the future, there are plans to transform the landfill into a public park with recreational, sports and children's areas. The project also envisages landscape integration through the planting of native vegetation and the reconfiguration of the land to restore and enhance the space for the benefit of the community.



View of the slopes and embankments of the landfill site



Aerial view of the landfill site looking west-east

Solution

The landfill was sealed using geosynthetic materials, providing an effective waterproofing and environmental control solution. Once the geomembrane installation was complete, Maccaferri supplied MacTex geotextile, MacDrain drainage geocomposite and MacGrid geogrid. The MacDrain drainage geocomposite, placed above the waterproofing layer and designed to collect and channel water infiltrating the surface of the slopes, as well as any gases, played a key role in the closure. The MacGrid geogrid acted as reinforcement, providing additional

resistance to stresses caused by the cover soil. In addition, gabion walls were constructed at the foot of the slopes in certain areas to provide greater stability. The gabions used in the project were manufactured from 8x10-16 double-twisted hexagonal steel wire mesh and filled on site with stones to create flexible, permeable and monolithic structures.

All products installed during the landfill closure are CE marked and have an Environmental Product Declaration



Installation of MacGrid WG geogrid



Installation of MacDrain W and MacGrid WG



Gabion wall at the foot and slopes of the landfill



General aerial view of the landfill site



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